THE BUILDER

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ONE GOOD THING AT LEAST

DURING a lull in the controversy upon the question of Registration, we may with profit occupy ourselves with a little mental stocktaking. Registration may or may not come, and it may come in one form or another, and we feel that, for the time being, at any rate, we have given voice to sufficient opinion upon the matter. It is clear, however, that the vast and earnest efforts which have been made to bring this matter to a head will have brought about at least one good thing, whatever turn politics may next take. We are convinced that these efforts have engendered a new sense of corporate unity within the architectural profession.

For perhaps the first time within the memory of man, by an almost overwhelming majority, members of the profession have united to express themselves in favour of a definite line of policy, and of a definite course of action. It is not our immediate purpose either to applaud or criticise this definite line of policy or this definite course of action, but we are convinced that the significance of the fact has yet to be fully appreciated, both from within and from without the profession. We regard it ourselves as a distinct sign of a new corporate strength among architects, the potentialities of which must be almost without limit; and if we could apply it to the solution of the many problems which face us now, and which will face us in the future, there is no doubt that there would be a wonderful clearing of the atmosphere.

We do not suggest that members of the profession should contract into or out of a rigid political creed, but we do urge that there are many matters which should be approached in a corporate spirit, and that the official voice of the profession should be permitted to speak with a greater weight than the expressions of mixed individual opinion. It does appear to us at times that architects, with the best intentions in the world, and with the most sincere sense of conviction, are very prone to rush into print and throw the lay conscience into confusion before a general mature judgment has been passed by a fairly unanimous majority of their fellows. To the man in the street, it is often the first impression that remains the last, and a well-constructed letter from one qualified individual may outweigh in his mind any belated expression of considered opinion coming from the Institute as a whole. The opinion of the individual may at times be the right one, and the official voice may be wrong, but we believe that by the laws of average, in ninety cases out of a hundred it will be the individual who will be wrong, and we feel that, in any case, it is but seemly that the official voice should be allowed to make the first impression.

We may quote an instance where this principle might have been applied with advantage. The question of the Thames bridges has been before us for many years, though particularly within the last two or three. Would it not have been far better if architects had thrashed this matter out among themselves, and in a domestic atmosphere, before individuals from their ranks had voiced their opinions in the public Press? We believe, as a matter of fact, that there is a very near approach to unanimity in the profession upon this important subject, but is it possible for the man in the street to realise it? Does he not bear in his mind rather a confused medley of technical and artistic advice, in which one calls for a bridge here, another for a bridge there, one for this bridge to be retained at all costs, and another for the same bridge to be swept away? Is not an already difficult question still further confused by this state of affairs, and would it not be so much more simple for the layman to form a right judgment if he were able to say that "the architects" thought this way? We ask for no muzzling of individual opinion; we simply plead for a fair field for the official voice of architecture, which has already proved that it is articulate, by the fact of the Registration Bill. We shall not be dismayed by an appearance of discord, for frank discussion upon any subject, however involved and difficult, is bound to uncover a vein of kinship in ideas, along which, with charitable intent to think broadly, all the essentials of unanimity may be found. It may be a matter of pure conjecture as to whether our post-war housing problems might have found an easier solution behind a united lead from the profession, but it can hardly be doubted that such might have been the case.

Yet another matter, which would seem to be with us always—our inveterate civic untidyness. We do not refer to the scavenger—with whom we have no quarrel—but to that general "sloppiness" in civic detail, to which we never cease to call attention, and against which we shall never tire of protesting. We have had, and we welcome, the warm support of countless individuals in the architectural profession in our campaign, but we must confess that we are not entirely conscious of the support of the whole body of architects, and we are inclined to doubt if this matter is being taken sufficiently seriously.

Whole areas of London are being demolished, to remain in desolation for months at a time, and sometimes for years, with no effort to make the interim at all sightworthy. The romantic groups of scaffolding and derricks which mark some new building effort are defiled by the irreverent bill-poster, and long ungainly arms stretch over the village pavement from petrol pump to curb at every few yards. These are but a few of the signs of an untidyness which is as much mental as physical. How very much nearer we should be to civic order if every architect felt that his profession called upon him to make his protest against these things, and if every public body was aware that an entire learned profession rebuked them when they ignored the decencies.

We appeal to the whole body of architects to make use of this waiting period, during which the fate and form of the Registration Bill hangs in the balance, to consider the many ways in which a united profession can act for its own good and for that of the country at large. It is a big matter to consider in every way, but all the more worthy of serious thought.

We are convinced that there is much good work to be done if our problems are approached in some such broad spirit as we have sketched, and we believe that there are many, even among those who are bitterly opposed to the Registration Bill in its present form, or, for that matter, to any Registration Bill at all, who will feel thankful for such corporate effort, if the lesson learnt from it can be applied towards the solving of other and greater problems with which we are bound to be faced in the future. Let architects forget their little bickerings; let them do their utmost to assist in concerted thought and action, and let them remain loyal to the same. Thus may we find their great profession about to take its rightful place of importance in the centre of civic life.

Without fear of raising a point of contention at an unsuitable time, we point to these considerations as together forming at least one desirable outcome of the Registration campaign.

NOTES

Sound Criticism.

WHATEVER may be thought about the criticism of modern building, we can surely feel that there is a kind of criticism which is of real value. We have heard it argued that the safest and best way is to be satisfied with appreciation of what is good and omit comment on what is indifferent or bad. We can hardly subscribe to this, but it is certainly very pleasant to read such an appreciative notice of modern architecture as that which appeared in the *Times* on Tuesday, *apropos* of the opening by the King of part of the Museum at Cardiff. This article is not only discriminating but generous, and architects should be glad that our leading daily paper has enabled the public to realise something of the better qualities of modern work through the agency of a competent critic. The fine qualities of Messrs. Lanchester & Rickards' buildings are duly noted with a probably fair reservation, the wholly admirable result in Messrs. Wills & Anderson's small University Registry building, and full recognition of what Messrs. Vincent Harris, Percy Thomas, and T. G. Moodie have also done, lead up to very generous notes on the partially completed national Welsh Museum, by Messrs. Smith & Brewer, now being carried out by Mr. A. Dunbar Smith with such good feeling as to scale, proportion, and dignity.

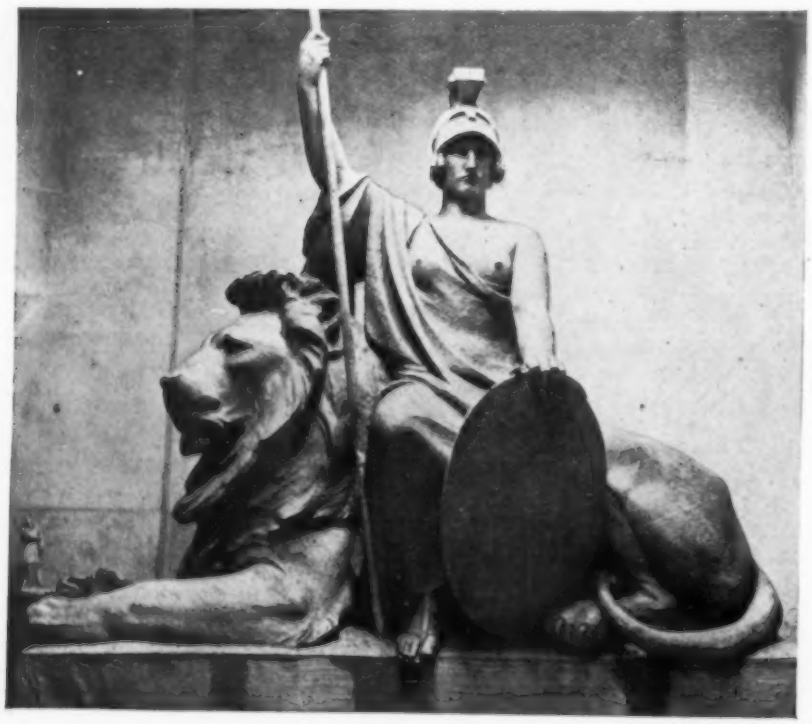
A Fortunate City.

CARDIFF is assuredly to be congratulated on its good fortune in the splendid gift of land from the Marquis of Bute, the wise and far-seeing action of its City Council, and the high standard of architecture which the city has been fortunate enough to secure. We could hardly point to any other town or city which has been blessed by such a combination of good fortune. It is only to be hoped that other town and city authorities will emulate so noteworthy an example.

Progress Scheduling.

THE hope is often expressed that before long there will be introduced into all our technical schools, where building is studied, a special course of training in progress scheduling, such as is practised in the United States, Canada, and elsewhere. Mr. Hugh Davies, the well-known inspector at the Board of Education, who is mainly responsible for the details of building education, has, we understand, been taking considerable personal interest in this question. Scheduling depends in the first place in studying exactly how much time it will take to do work of various kinds on any building. Such subjects have to be carefully considered—as how long material has to be on the job before it is required; when the stonework and steelwork shall be sorted and stacked; when the approved shop drawings should be provided to contractor by the architect; at what date the various stages of the building should be completed. It is estimated by those who have been studying the subject, that in spite of the special difficulties in this country resulting from out-of-date building by-laws and the laws of Ancient Lights, that scheduling would reduce the ultimate costs of building from 5 per cent. to 10 per cent., without in any way affecting labour charges or profits. Probably at technical schools the problem of progress scheduling will be part of a course of advanced lectures in quantity surveying, and it is hoped that the Office of Works, the London County Council, and other public bodies will provide from their records definite data on which to base these lectures.

Model of Memorial Fountain, Star and Garter Home, Richmond, Surrey.
SIR EDWIN COOPER, Architect.



Stone Sculpture Group for the County Fire Office, Piccadilly Circus.
MR. HERMON CAWTHRA, Sculptor.
[The group, which is 15 ft. long and 12 ft. high, will be placed at a height of 100 ft.]

Society of Master Glass Painters.

THERE is much of interest for the reader in the April number of the Journal of this Society, which includes a variety of themes dealing with subjects of importance to all conversant with the art of stained glass. Mr. J. A. Knowles, who has a happy way of contributing much good humour and accuracy of information in his antiquarian studies, gossips pleasantly on glass painters' advertisements, and refers in passing to a handbill issued by John Constable, R.A., giving the prices for his landscapes. Henry Gyles, of York (1645-1709), appears to have been the first glass painter to issue an advertisement. William Peckitt (1752) informs us that he executes "Scripture pieces for church windows, arms in heraldry, &c., in the neatest and liveliest manner." All this, it is agreeable to learn, and diverts us from the superstitions that invest anything ancient in glass with superhuman virtues to the detriment of work in glass executed at the present day. This Society aims to protect the interests of both the individual worker and the craft as a whole, and its Journal includes much useful information—antiquarian, scientific and artistic—on this attractive theme.

A Visit to "The Star and Garter" Home, Richmond.

LAST Saturday week this fine War Memorial Home for disabled soldiers, erected on the splendid site overlooking the Thames on the summit of Richmond Hill, was visited by a representative and appreciative company organised by the Art Committee of the R.I.B.A. The hon. architect,

Sir Edwin Cooper, conducted the visitors over the buildings, and explained many of the structural details, including also the beautiful memorial chapel attached to the home, with a separate entrance for its grounds. The mortuary chapel close by is extremely well situated, tastefully equipped and decorated. From every point of view, the grouping of the buildings is most satisfactorily managed, whether seen from the Park or from below looking up from the river. Before leaving, at conclusion of the tea provided by the authorities, a vote of thanks was proposed to Sir Edwin Cooper for his courtesy in attending to meet the party and explain the building. Mr. Maurice B. Adams, at the request of the company, undertook this motion and signed the visitors' book on their behalf as a record of the occasion. Sir Edwin Cooper, in responding, paid a warm tribute to the Governors and builders and to the able services of his clerk of the works.

Sunlight.

The importance of sunlight, and more especially of the admission of ultra-violet rays through our windows and smoke fogs, is daily being insisted upon. The trouble at present is that the cost of glass that permits the passage of these rays is inordinately high and beyond the reach of the ordinary man, who has to pay more for his house already than he can afford. We hope that no effort will be spared in the attempt to reduce the cost of such glass as, under present conditions it is impossible to look for its general use in home, school, and factory. There appears to be little doubt that, with the elimination of smoke, fog, and the common glass that intercepts ultra-violet light, we should enormously improve the public health and resistance to disease.

(*See page* 640.)

Wood Statuette—Breton Mother.
The late F. Derwent Wood, R.A., Sculptor.

Notes on Exhibitions: The French Gallery.

The French Gallery in Pall Mall is interesting as usual. One sometimes wonders how it is that we find so much coldness in the greens of French landscape art. It is often a coldness that is somehow rather raw; not the coldness in the charming little landscape by Sir C. J. Holmes of mountains under snow (56), which is a charming bit of colour. In the "Fontainebleau" (1), by Corot, we find the usual grey-green (a delightful little picture), but in such pictures as Nos. 2 and 11, vivid as they are, the coldness of the colour has a something of rawness in it, and is a great contrast to the rich effect of Corot's "Cours d'eau au Rives Boisées" (4). This is a masterpiece of its kind, with a breadth of soft, rich green foliage in contrast with a pearly blue sky. The "Pastorale," by Jacque (6), has a wonderfully vivid effect of light, and probably with rather less insistence of detail in the foreground would have been finer still. Sir J. Lavery's "Sidi-bu-Said" (38) is a delightful passage in grey, and Fantin Latour's, "Les Pêches" (53) is a most delightful study of fruit. One of the really poetic things in the Exhibition is the "Evening," by M. de Bock. It seems hardly credible that Corot should have painted the flower piece (20); it is certainly lacking in colour value.

GENERAL NEWS

Professional Announcements.

The Chelsea Borough Council have appointed Mr. Archibald S. Soutar, L.R.I.B.A., of 8, King William-street, Strand, as architect in connection with the Council's proposed scheme for the improvement of the World's End Passage Area.

We are informed that Mr. Arthur Edwards has been joined in partnership by his son, and that they will practise in future as Messrs. Arthur Edwards & Son, at a new address, King's Court, 115, Colmore-row, Birmingham. Telephone No.: Central 943.

Mr. Ernest Fiander Etchells' Estate.

Mr. William Edward Ernest Fiander Etchells, of Franciscan-road, Tooting, S.W., Hon. A.R.I.B.A., A.M.Inst.C.E., A.M.I.Mech.E. (net personalty £977), left £1,476.

Sir Luke Fildes' Estate.

Sir Samuel Luke Fildes, R.A., of Melbury-road, Kensington, who died in February, aged 83 years, left estate of the value of £69,029, with net personalty £68,572.

Stadium at Blackpool.

The Blackpool Corporation has granted to Mr. C. B. Cochran a site of 700 ft. square on which to erect a stadium capable of accommodating 100,000 people on the new promenade at South Shore.

Swedish Sculpture.

Owing to the interest aroused by the exhibition of works by the Swedish sculptor, Carl Milles, at the National Gallery, Millbank, it has been decided that the exhibition shall remain open until 6 p.m. on Sunday, May 1.

Accident to Architect.

While making an inspection on a scaffold at the top of a new building in Piccadilly on Wednesday Mr. E. Crutchley, a young architect on the staff of Messrs. Wimperis, Simpson & Guthrie, fell 40 ft. to the pavement and broke both his legs and injured his ribs.

Structural Engineers' Annual Dinner.

The annual dinner of the Institution of Structural Engineers will take place at the Piccadilly Hotel on May 16, with the Right Hon. Lord Carson, P.C., K.C., as principal guest. It is expected that over five hundred members will attend.

The Royal Gold Medal for Architecture.

Intimation has just been received that His Majesty the King has approved the award of the Royal Gold Medal to Sir Herbert Baker, A.R.A., F.R.I.B.A., in recognition of the merit of his work as an architect. The Medal will be presented to Sir Herbert Baker at the banquet of the R.I.B.A. on June 23.

L.C.C. and Prince's-square, Kennington.

The L.C.C. have granted £500 towards the buying of Prince's-square, Kennington Park-road, S.E.—one of the few open spaces in the district. Recently it has been threatened with destruction. The owners of the square, it is understood, have just reduced the price to £2,000, and with the £500 offered by the L.C.C., it is hoped that it may be possible to preserve the square as a playground.

Birmingham Extensions.

The Birmingham City Council has sanctioned the erection of a new central fire station on an island site at the junction of New Corporation-street and Aston-street, the cost of which, inclusive of demolishing the present buildings on the site, re-housing tenants and providing fresh offices for the Corporation Weights and Measures Department, will not exceed £200,000.

Free State War Memorial Dispute.

In the Irish Free State Senate leave was given on the application of Senator Jameson to withdraw the Merrion-square (Dublin) Bill, 1927. The promoters of the measure, he said, had accepted the inevitable, and had taken counsel as to what steps would now have to be adopted to satisfy their legal liabilities to their subscribers. The Bill, which provided for the erection of a national war memorial in Merrion-square, was rejected by the Dail at the instance of the Free State Government.

Architectural Association Arrangements.

An Exhibition of Modern Danish Architecture is being arranged by the Association to be held in the hall of the Art Workers' Guild, Queen-square, Bloomsbury. The exhibition will be opened on May 23 by His Excellency, Count Ahlefeldt-Laurvig (Danish Minister in London), and will remain open to the public for two weeks.

The Excursion for 1927 will be held during the second two weeks in September, and arrangements are being made to visit Salzburg, Vienna, and Prague. Full details will be given later, but it would be of material assistance if members wishing to join the excursion would enter their names provisionally as soon as possible.

Obituary.

Mr. Hugh Gavin, a well-known Forfarshire architect, has died at Arbroath, 68 years of age. Coming from Malta, where his father was an instructor in navigation, Mr. Gavin was educated at Stirling, and qualifying as an architect, he became a member of the firm of Messrs. Croll & Gavin, Dundee, later having charge of their branch in Arbroath, where in 1891 he set up in business on his own account. He built up an extensive business, and executed many important contracts in Montrose, Arbroath, and other parts of Forfarshire.

We regret to announce the death at Newcastle, in his seventy-fifth year, of Mr. John W. Rounthwaite, formerly a well-known north-country architect, who had practised at Sunderland, Shotley Bridge, and Newcastle.

Houses for Disabled Men.

The British Legion are about to start upon a scheme for erecting houses in various parts of England and Wales to be occupied by disabled and ex-Service men. Already a substantial sum of money has been allotted for this purpose. The country has been divided into 11 areas for administration, and the houses will be erected in groups according to local needs. The whole of the organisation of the scheme is being carried out by the headquarters of the British Legion, and the architects are Messrs. Thomas & Wood, who were formerly Housing Commissioners of the Ministry of Health. Sites are now being acquired, according to the *Times*, and a start will be made as soon as possible. It is hoped that a number of houses will be completed and let at a very low rent before October 1, and the remainder will be erected without delay after that date.

The Wren Society.

The fourth (1927) Volume of the Society is now in preparation and will be issued to subscribers early in June. This volume is entirely devoted to Hampton Court Palace, and Her Majesty Queen Mary has graciously consented to accept the special dedication of the book in recognition of the life and work of Queen Mary II (1689-1694). The drawings of Sir Christopher Wren and Grinling Gibbons, reproduced for the first time in this volume, are of exceptional interest and relate to the miniature Versailles that was intended even more than to the Palace as actually built. The drawings fill fifty-one collotype plates and include a series of authenticated designs for fireplaces by Grinling Gibbons. The text comprises some seventy pages of Accounts, Letters and Official Documents for the publication of which special leave has been obtained. These papers are of great interest in showing the difficulties and pin-pricks that Wren was constantly beset with, and throw a light on the architect's relations with his official staff. As it is expected that the issue will quickly go out of print, early application should be made for this work, which can be obtained in return for the annual subscription to the Society of a guinea. The hon. secretary of the Wren Society is Mr. H. Duncan Hendry, F.R.I.B.A., of 53, Doughty-street, to whom all correspondence and applications for membership should be addressed.

COMPETITION NEWS

Private Houses Competition, Strode Park Estate, Herne, Kent.

Three prizes of free sites, value £350, £100, and £50, are offered for the best designs for private houses at costs of £1,500, £800, and £450 respectively, to be erected on the prize-winning sites. Particulars may be obtained on application to the Secretary, Estate Office, Strode Park, Herne, Kent.

Professor Charles Gourlay Memorial Scheme.

A meeting of the Committee for this scheme was held in the Royal Technical College, Glasgow, on the 16th March, Mr. A. Cullen, A.R.I.B.A., presiding. The secretary reported that the sum of £87 had been subscribed to date, and that further contributions practically assured the sum of £100 being realised. Dr. Stockdale, Director of the College, expressed the opinion that the time had now arrived when the Committee might definitely move in the matter of the memorial. A time limit to the raising of the funds should be set as soon as the definite scheme for the memorial could be settled.

Meantime it was unanimously agreed that Messrs. A. Cullen and W. J. Smith be invited to co-operate to prepare a design for the memorial headstone and medallion, together with the estimated cost for submission to the next meeting of Committee, to be held in the College on March 31st. By that time it is hoped many more subscriptions will have been received. The Committee desire all past students and friends of the late Professor Gourlay to have the full opportunity and privilege of subscribing.

Rural Industries Exhibition.

The Rural Industries Sub-Committee of the Hertfordshire County Council, acting in conjunction with the Herts and Beds District Committee of the National Master Farriers' and Blacksmiths' Association, announce a Rural Industries Exhibition to be held at the Hertfordshire Agricultural Society's Show, Hatfield Park, on Thursday, June 9. Entries are invited in all or any of the classes set out in the schedule from all members of the Herts and Beds Branch of the N.M.F. and B.A., or any other farrier or smith, wheelwright or saddler residing in the Administrative County of Hertford. The entry fee is 1s. for each exhibit, payable at the time of entry. Entries must be sent on a special form to Mr. A. Dean, Herts Institute of Agriculture, Oaklands, St. Albans, from whom full particulars are obtainable. The last day for receiving entries is May 21. The Worshipful Company of Blacksmiths offer a special prize, value £2 2s., and a medal, for the best exhibit of hand hammered iron-work in the Smith's Section. Three prizes, value £1 10s., £1 and 10s., will be offered in each class, and a diploma will be awarded for each exhibit which is of sufficient merit, whether allotted a prize or not. Smiths' Section: Class 1, Agricultural implement or part of an agricultural implement. Class 2, Wrought-iron gate or panel of fencing. Class 3, Scroll work. Any of the following articles:—Bracket or frame-work suitable for trade signs, lantern, &c.; brackets for door porch, candelabra, gas or electric light fittings. Class 4, Door fittings. Any two of the following:—Door hinges and hooks (plain or scroll) not exceeding 30 in. in length, knockers, letter flaps, handles or latches, bell pulls, bolts, or one boot scraper. Class 5, Fire dogs, fire baskets, fire-iron rests, set of fire irons, trivets, fire screens, umbrella stands, log tongs, &c. Class 6, Any fancy or decorative iron-work, not mentioned above (*e.g.*, church furniture and fittings, weather vanes, sconces, candlesticks, toasting forks, &c.). Class 7, Any plain iron-work not mentioned above (*e.g.*, window frames, gutter brackets, fagotting bills, garden implements, &c.) Class 8, Any of the articles specified in Classes 1 to 7 inclusive, made of wrought iron and acetylene welded. Class 9, Any article of cast iron, repaired by acetylene welding. There are also sections for wheelwrights' work and saddlery.

Memorial Fountain, Star and Garter Home, Richmond, Surrey.

Sir Edwin Cooper, Architect.

CORRESPONDENCE

[While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

Acquisition of Chiswick House and Grounds.

SIR,—I notice in your issue of the 1st instant a letter by Mr. Maurice B. Adams, F.R.I.B.A., with reference to Chiswick House, and although Mr. Adams commands my respect as an architect I am bound to challenge the statements set out in his letter. It is interesting to note that Mr. Adams was one of those who, in 1918, helped to defeat the proposals of the Brentford Gas Company to obtain powers to acquire a large portion of the Duke's Meadows for the erection thereon of gasworks, and it makes one wonder with what poison he has been inoculated that Mr. Adams should now advocate the spoliation of the Duke's Meadows, against which he fought in 1918.

Mr. Adams is silent as to the offer made by the Barnes District Council to contribute something in the neighbourhood of £15,000 towards the cost of the acquisition of Chiswick House provided the Chiswick Council does not part with forty-five acres of Duke's Meadows for the erection thereon of the proposed generating station. Had Mr. Adams attended or read the account of the proceedings at the local inquiry, held by the Minister of Health, in October last, with regard to the Chiswick Council's application for an amendment of its Town-planning Scheme, he would have been aware of the terms of the offer made by the Barnes Council.

For his enlightenment, and also that of others, I may state that the proposal was that instead of exchanging Chiswick House for the forty-five acres of the Duke's Meadows the Chiswick Council should retain the forty-five acres required for the power station and continue to receive the sum of £1,500 per acre which is being paid by the Concrete Aggregates, Ltd., in respect of the sand and gravel from thirty acres of the site. The capital value of £1,500 multiplied by thirty is £45,000, and the suggestion of the Barnes Council was that this capital sum should be applied towards the purchase of Chiswick House, and that the Barnes Council would furnish the balance of £15,000, or such other sum as the Minister of Health should decide might be necessary.

In addition grants could probably be obtained from the London County Council and the County Councils of Middlesex and Surrey as was the case when the Marble Hill Estate at Twickenham was purchased for the public in order to preserve the view from Richmond Hill. By this means Chiswick would be able to acquire Chiswick House and retain the Duke's Meadows without having their amenities spoilt by the power station. This offer has never been seriously considered by the Chiswick Council, but was contemptuously declined at the local inquiry without its having been submitted to the decision of the ratepayers. I have made inquiry within the last few days, and have ascertained that the Barnes Council's offer is still open and will be renewed. This strikes at the root of Mr. Adams's argument that consent should be given to the erection of the super power station.

As to the various inaccuracies in his letter, I must point out that Chiswick House need not become a building estate, as the Duke of Devonshire, in the letter referred to at the local inquiry, has given the Chiswick Council the first opportunity of purchase, and this can be done in the manner indicated.

Mr. Adams's suggestion that the total area of Chiswick House and Duke's Meadows, 244 acres, would have to be maintained out of the rates is obviously inaccurate, as the sports grounds belonging to the clubs, the Civil Service and Fuller, Smith & Turner, are maintained by those clubs themselves. The Chiswick Polish Company are the freeholders of eighteen acres of the Duke's Meadows, and on a large portion of this they have laid out and maintain a sports ground for their staff. It is only on the northern portion of these eighteen acres that their factory will be erected. This factory will only contain one chimney for the boiler-house, and Mr. Adams's suggestions that the polish factory and the generating station are to balance each other is ludicrous. The proposed generating station is to have thirty chimneys, each over 100 ft. high, and with its buildings, coal parks, and railway sidings, and dock is to cover forty-five acres. The suggestion that the railway embankment would materially screen the power station from observation was shown by expert evidence at the local inquiry to be without foundation.

With regard to the last paragraph of his letter, Mr. Adams seems to suggest that Chiswick House grounds should become the home of athletic sports and pastimes, but with the exception of the existing cricket ground at Chiswick House the grounds are not suitable for use as a sports ground, and, as I stated in evidence at the local inquiry, Chiswick House grounds should be used as a park and not as playing fields.

H. N. SHERWIN WHITE.

KENT'S COLLIERY BUILDINGS

IT is already possible to foresee the future of the new colliery villages that are rapidly being built in East Kent. A recent visit to Aylesham revealed a new town springing into life, and it is expected that the 400 houses now in course of erection will be completed by the end of this year. These houses are being admirably arranged on both sides of the valley. A broad boulevard is to run up the centre, leading from a railway station and civic buildings to a church at the further end. The houses are being well constructed by the Dorman Long Housing Company. Of those that are now being built, 50 per cent. have parlours as well as living rooms. All have three bedrooms with the exception of 48 brick houses. Special attention has been given to devising different types in order to avoid monotony. There is no standardisation. Half the houses are to be built in concrete and half in brick. Combinations of blocks of the different designs give eighteen types.

This new town is being erected by a public utility society. The Chairman is Mr. H. E. H. Rice, who has done so much for development in Kent, and half of the members are representative of the Eastry District Council and half of the Pearson-Dorman Long Company, All the houses are to be let. On the site, special attention is being given to providing amenities for the colliers and their families. Some 48 acres of ground have been reserved for playing fields and children's playgrounds. Here sports pavilions will be erected, and already the company have appointed Major Owen to take charge of the social and recreational work. There will be a large Institute with a stage for dramatic and operatic performances, a shopping centre, and sites have been reserved for the school and for a hotel.

The houses are built for the most part on a steel frame, and one inch of compressed cork has been fixed as a lining to the walls. Experience is showing the utility of this cork, which helps to keep the houses warm in winter and insulates the walls so that not so much noise can be heard from adjoining houses. None of the houses at Aylesham is yet occupied, and those miners who are now working down the Snowdown pit are for the most part housed at Woolage. This is a small hamlet one mile away from the pit, set in an area that teems with game of all kind, but this happy state of affairs is not likely to last for long! The houses face south with a delightful view across the country-side of Kent towards the sea. This pit was taken over in 1924 as a going concern, and since then has been entirely re-equipped with head-frames and electrical winding. The depth has been increased from 2,500 to 3,000 feet, and the men are now working in dry seams.

In conversation with some of the tenants of the houses we learnt that many of the men come from Derbyshire. In fact, every family in one road had migrated last year, during the period of difficulties in the coal industry, from Derbyshire to Kent. Usually the husband had gone on ahead in order to discover whether he could be taken on in the Kentish coalfields, and then whether he liked new surroundings. Apparently they found a country unspoilt and congenial and sent for their families. As compared with South Lancashire, the absence of cinder heaps is very noticeable, and it is hoped that all the six collieries now being developed will cause comparatively little nuisance to the surrounding country, for all are to be electrically operated throughout, and thus there will be no smoke.

The difficulties of establishing new villages on out-of-the-way sites is, of course, very great. To an outside observer, however, it was strange at Aylesham to see some four hundred houses being constructed without roads, or, at any rate, foundations for roads, having been first laid down. In consequence, much of the ground was deep in mud, and much time and unnecessary expense must be incurred in bringing the necessary materials to the site, and much inconvenience caused to the building trade operatives in reaching their work. No doubt the architects, Messrs. Abercrombie, Archibald, and Martindale, are by now fully aware of the difficulties that are being caused by the houses being built before the roads.

Another criticism was freely voiced by some tenants. They complained of the design of the houses with the bathroom upstairs instead of downstairs. One woman said that a bathroom upstairs was quite out of place in a miner's cottage. Her husband and her two lodgers carried muck and coal-dust that they had collected down the pit up the stairs and into the bathroom, and it was impossible to prevent the dirt getting into the bedrooms. It is intended in time to instal pit-head baths, but the English collier is conservative by temperament and prefers to take his bath in his own home.

The villages are well sited. In one case, although only a few minutes' walk from the pits, the machinery is quite hidden out of sight by an intervening slope of the hill. At Aylesham only the tops of the machinery were visible. Thus the villages are likely to retain a rural aspect for many a year to come, provided the estates are properly managed.

City Livery Club's New Home.

The City Livery Club, whose members are drawn exclusively from the ancient City of London Guilds, has acquired the lease of part of the Chapter House of St. Paul's Cathedral. The house was built by Wren about 1712, at a cost of £5,000; to-day the building and site are estimated to be worth twenty times that amount. Formerly the clergy summoned to Convocation met and robed in the house and went across in procession to the Cathedral to attend a service in Latin before proceeding to Westminster. The building, says the *Times*, has dignity and simplicity. The ground floor has a large square panelled entrance hall, paved with plain white marble slabs. There are deep-set doors and windows in the thickness of its walls. A fine old table in the hall is as old as the house and is reputed to have been constructed from timber saved from old St. Paul's after the Great Fire. On the right of the hall is the apartment now used by the bank. A wide shallow staircase has beautiful wrought-iron supports to the handrails. The chapter room is on the first floor, looking out to the Cathedral, and is remarkable for its dark old wainscoted and panelled walls. On the second floor is a spacious room with white panelled walls and deep windows, and a series of smaller rooms all possessing the panelling and features of the Queen Anne period. In 1865 extensive alterations were made to adapt the house as a residence for the Archdeacon of London, and from that date until 1920 it was in the occupation of successive holders of that office.

AMERICAN APARTMENT HOUSES.—XV

By F. E. BENNETT, A.R.I.B.A.

Costs of Building.

Buildings cost about twice as much as land in good residential parts of New York. The following tables show costs of two apartment houses:—

14-Story Apartment House in Chicago, 1925.

	Percentages.
Wrecking	·40
Excavation	·60
Piling	2·10
Concrete, Foundations, Structural Frames, Floors	20·15
Masonry	3·55
Partitions	5·05
Cut Stone	3·00
Carpentry	14·60
Lath and Plaster	6·65
Ornamental Iron	3·00
Fire Escape	·75
Sheet Metal	·80
Roofing	·09
Glazing	·70
Smoke Stack	·40
Marble	·80
Tile	3·45
Plumbing	8·45
Heating	4·00
Ventilation	·50
Electric Wiring	2·50
Elevators	3·00
Pipe covering	·70
Painting and Decoration	3·12
Hardware	·70
Screens	·30
Weather Strips	·36
Refrigerators and Machines	1·40
Ranges	·40
Lighting Fixtures	1·60
Shades	·27
Clothes Dryers	·25
Furnishing and Landscape	·50
Sundries	5.86
	100·00

Apartment House, Park-avenue, N.Y., 15 Stories, 1925.

	Per ft. cube.
Total Cost of Buildings	$·65
1. Foundations—Rock excavation at $5·3½ per ft. cub.	·07 or more
2. Steelwork	·08
3. Flooring and roofing	·075
4. Heating equipment—2 boilers, 2 hot-water tanks, radiator and pipes	·02
5. Plumbing equipment—Roof tank, drains, pipes and fittings	·03
6. Electric light fittings and equipment	·012
7. Elevators and equipment—4 at $4,000 each, 4 cars at $500 each	·03
8. Refrigerators—45 at $100 each	·005
9. Gas ranges—45 at $100 each or less	·005
10. Stairways—$100 per flight floor to floor, 1,500 per stair, including walls	·07
11. Exterior walls—Face bricks at $40 p.m.; yellow bricks at $35 p.m.; common bricks at $20 p.m.; tiles, 8 in. by 12 in. by 12 in, 10 ft. 2	·11
12. Partition walls—Tiles, 3 in. by 12 in. by 12 in., at 8 ft. 2; blocks, plaster, 3 in. by 12 in. by 36 in., at 5 ft. 2	·053
13. All trim (joinery) and kalamine, and finishing	·09
Total	$·65
Or, per cubic ft.	2s. 7½d.

The financial problems in the building of a block of flats, while they are not his immediate concern, must be readily grasped by the American architect if he is to satisfy his client. Sometimes it is necessary for him to work out "Financial Studies" of the building he designs, and even sometimes he will raise the loans and organise all the financing for his client. Indeed, the readiness of many architects in recent years to undertake this part of the work as well as the designing and erecting has tended to raise the status of the profession considerably in the eyes of American business men. Architects will now range themselves alongside financiers, real estate operators, and builders, and speak of their success in building enterprises; how they have operated so many schemes for the building of "apartment houses" and commercial buildings, and how they have had very few or no failures. They will speak of the ideals and the principles on which they have worked; how they have studied economical and financial factors and reduced them to definite quantities, and how they have recognised the dominance of the financial issue in all their schemes. They will speak of the "science of real estate values" or the "science of economics" which they are evolving. One prominent architect says: "The 'science of economics' is the American contribution to architecture. This is where the future lies. The plan and elevation are related to this æsthetically. The job must pay to be in relation to demand. The science has just started in America but has not penetrated to England."

They have certainly been in a position to arrive at real estate values, and to some extent they have done so, and they have certainly arrived at some standard values which are useful to themselves. It must be recognised, however, that their success is partially due to the rapid growth of their country during the last 20 years, and to the fact that the demand for commercial and flat buildings has been greater than the supply. Would-be tenants have been anxious to obtain accommodation, and building enterprises have had a good chance of success even in the hands of very unscientific organisers.

Under normal conditions of a settled district, where supply and demand are at equal level, the landowner sells for the price his land is worth; rent rates for a new building are practically determined by the other rents in the district, and the cost of building is fairly definite. This means that every new building only succeeds by drawing tenants from older ones. Up till now circumstances have been very kind to the speculators in America, providing them with very favourable opportunities, so that many successes have been possible. It is believed by some, however, that a crash may come soon, when there will be a glut on the market.

In the meantime there is no reason why a "science of economics" should not be developed, not only in U.S.A. but in England too. However, any attempt beyond the few notes given to provide information on the subject or to describe how the "financial study" is prepared is considered beyond the scope of these articles.

Co-operative Schemes.

A "Co-operative Apartment Building" is a block of flats managed co-operatively by the various occupants. In the first place a building corporation is formed by a syndicate, which contributes the initial capital and starts the scheme. Tenant owners, as stock purchasers, come into the corporation and buy out the original holders.

The idea has become popular during the last few years, and quite a number of large buildings are being run this way. Payments for stock purchased are made by the new owners as the building progresses. The scheme from the syndicate's point of view is just like an ordinary building enterprise, with 30 per cent. initial capital, except as regards risk. The syndicate may not be able to find a sufficient number of stockholders to justify going on with it. Then they can sell the land again, and possibly at a price to cover expense; and possibly not.

The maintenance costs for a tenant owner are 80 per cent. of what would be the rental value. This 20 per cent. saving eventually balances the original price of stock. The tenant is also saving money because the cost of his personal service is lower than it would be in a private house. He has control of his flat too.

Tenants in New York have been known to buy stock "on paper" by paying 30 per cent. of the value of the flat before building has commenced. It is said that in one case all the flats of a building were so sold thirteen months before they were ready for occupation. It is owing to this state of affairs that a syndicate can carry through an enterprise with very small initial capital.

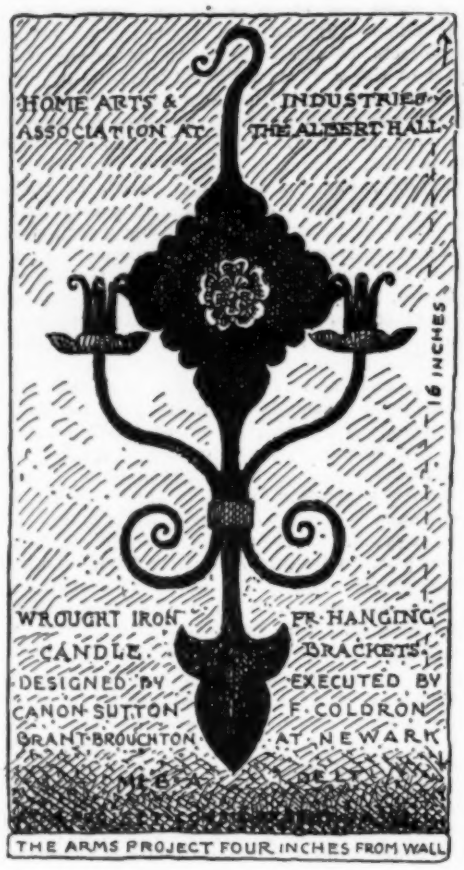
Old Bench End, St. Mary's, Haverfordwest, South Wales.

CONSISTENT DESIGN IN WROUGHT IRON AND METAL WORK

The recent conferences held at Conduit Street between architects and artificers to further a more intimate and active development of the allied arts contributing to building must be followed up by initiative, co-ordination and practical application. The question of Parliamentary registration concerns professional status, presumably instituted in the public interest although not necessarily insuring the production of good architecture. Without questioning the necessity of such a measure, it is manifest that the main consideration concerns material advantages rather than artistic advance, which is apt to become subordinated by mere business efficiency. Members more immediately concerned with the art side of their craft will do well to let no opportunity pass to keep alive the determination of our conferences to augment a co-operative spirit between the executants and the designers in all the details of decorative work incidental to architecture. In no branch is this partnership more needed than in the application of metal work, particularly in both cast and wrought-iron.

Professor Lethaby's suggestive articles lately published in *The Builder* usefully emphasized the consistent employment of cast iron. The more recent illustration of the restored wrought-iron railings round the de Loutherbourg tomb at Chiswick, designed by Sir John Soane in 1812, induced a brief correspondence arising from the fact that Soane employed a composite construction, using partly cast iron with brass roses attached to his wrought-iron fencing.

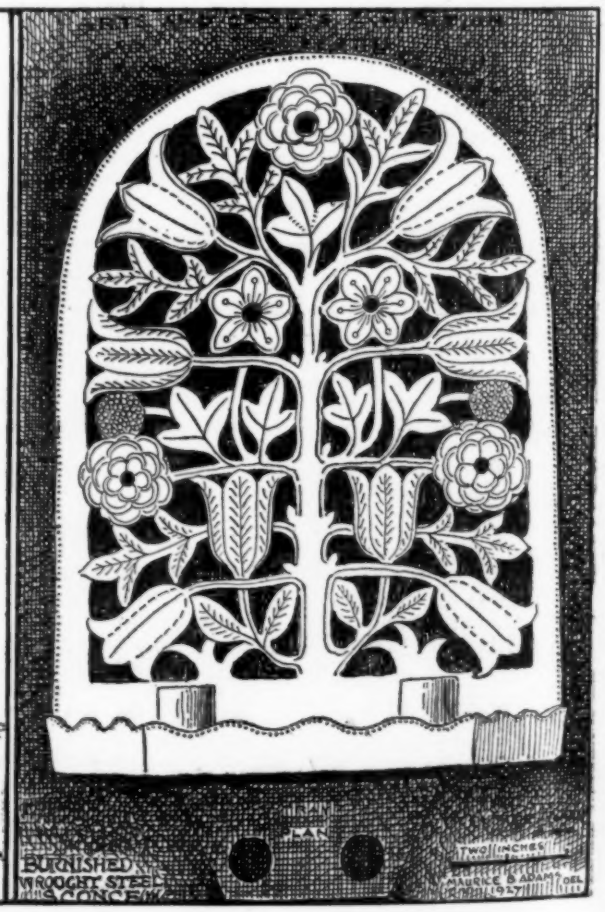
These happenings suggested this short incidental article about reviving consistent design when employing the craftsmanship of the smith. A pair of historic examples from Florence serve to illustrate these notes, supplemented by two or three instances of contemporary blacksmith's art. Leaving out all questions of periods and styles, it will be found that diversity of purpose such as matters


HOME ARTS & INDUSTRIES ASSOCIATION AT THE ALBERT HALL
16 INCHES
WROUGHT IRON CANDLE DESIGNED BY CANON SUTTON GRANT-BROUGHTON M.C.A.
FOR HANGING BRACKETS EXECUTED BY F. COLDRON AT NEWARK
THE ARMS PROJECT FOUR INCHES FROM WALL

of scale in each particular case amply furnish abundant opportunities for individuality of handling. Moreover, a piece of work intended to be seen from a distance set out in the open and exposed to the four winds of Heaven, must be conceived on different lines from designs placed under cover and so seen close at hand. Environment in all cases is of the utmost consequence, while an appropriate character is essential either for a palace or a cottage, a church or a municipal building.

Questions of cost, commonly the starting point, ultimately are found to be of secondary import to the enthusiast engaged in craftsmanship. The employer, claiming to be an authority in these matters, more than often creates a difficulty by being obsessed by predilections for periodic styles, refusing to admire anything not copied from the antique. Such people are not willing to agree that mere mechanical or commercial reproductions, executed under existing conditions, can never compare with a real piece of vital art more or less based upon a sense of traditional spirit. Only such initiative capability can give a sense of real pleasure and furnish continued delight. An accomplished work of art is the best investment.

On the other hand, the hope of turning out something frankly novel and absolutely "up to date," generally results in a transitory failure, tiring speedily, looking out of place by possessing no grip. Fakes are incapable of inspiring an intelligent interest, and make no appeal to lovers of the beautiful. Cheery simplicity based on old lines and adapted to contemporary needs by tasteful reserve furnishes the goal to go for. "Design, to warrant success, should avoid a whim or strange contortion of a useful thing into an extravagant freak, but rather it is the proper arrangement of how reasonable work is to be rightly done." We quote this terse remark from the catalogue preface issued by the Arts and Crafts Society in connection with their thirteenth exhibition held last year at the Royal Academy. A feature was wisely made in that gathering of the members' work by collecting between forty and fifty exhibits representative of the late W. A. S. Benson's productions, set out in the Architectural Gallery, including several pieces of metal work for which his shop in Bond-street became so famous in Victorian days. His copper and iron domestic appliances were then the vogue. To-day these speci-



Wrought-iron Gates, Lowder Memorial Baptistery, St. Peter's, London Docks.

Mr. Maurice B. Adams, F.R.I.B.A., Architect.

mens, treated as curios, seem to have lost their stimulating charm, looking already old-fashioned and odd.

Welby Pugin, the pioneer of applied design, promulgated with much the same insistence (in 1841, when his "True Principles" and "Contrasts" were published) similar discriminations as to the need of consistent design in the application of cast-iron as contrasted with products from the forge and anvil. He not unfairly depicted a specimen of cast-iron railings done in the modern Gothic style, and compared it with a drawing of a mediæval wrought-iron fence. For his purpose this served, no doubt, but the contrast would have been more justly effective by illustrating a truly legitimate application of cast-iron had Pugin given a detail of the pleasing verandah fronts carried out under the influence of John Nash during the days associated with the Regency. Still existing in Marine Square at Kemptown, close to the sea, they have suffered little from continued exposure. The few wrought-iron fences remaining near by along the Grand Parade at Brighton have during the same period become so rusted that their interest has gone, and their use will soon be ended by ruin.

In this relation to John Nash's influence at Brighton by his erection of the Royal Pavilion and the use of cast-iron, it may be pertinent to refer to the conversion, many years since by the writer, when an art gallery, museum and public library transformed the Prince Regent's stables into a modern institution. The Oriental style of this singular seaside palace, with its cusped and elaborated fenestration, was not easily adapted to an altered use. The walls of the stables overlooking the gardens were relieved by false windows as a mural treatment. These had to be opened up and utilized for lighting the new library rooms. Cast-iron furnished the solution of the problem structurally employed as mullions, shaped heads and transoms, glazed with plate glass. Masonry was impossible, and concrete was not developed as it has been since. The surrounds of the existing work fixed the scale, and cast-iron facilitated the use of the Moorish character imposed by the conditions. Inside the premises the art gallery fronts and other details were carried out for similar reasons in cast-iron, the work being done in a local foundry, under the supervision of the architect, who acknowledges the help derived from Owen Jones's "Grammar of Ornament," at that time recently published and still reckoned a standard work for reference.

In making a choice for illustration of masterpieces in wrought-iron, earlier periods than the nineteenth century must be depended on, and naturally preference both abroad and at home is given to the days of the Early Renaissance, going back to the triumphs of Benvenuto Cellini (1500-1570) in Italy, and his successor, Giulio Serafini, who, about 1600, produced some of the most exquisite wrought-iron imaginable, like his Palace Lamp, preserved in the National Museum at Florence. We give a drawing showing this choice example of unsurpassed skill, both in execution and design. The work of John Conway, Huntingdon Shaw, and Jean Tijou in England was somewhat later, like the splendid gates from Chiswick House (the production of Warren, the smith who did similar work for the colleges at Cambridge). They are now set up in Piccadilly, bordering on the Green Park, and were bought by the Queen Victoria Memorial Fund from the Duke of Devonshire, who had the gates set up at Devonshire House in 1897.

The silhouette given on page 635 shows the finial lion crowning the Palazzo of the Podesta at Florence, which is much earlier than either of the previously referred to examples, and obviously belongs to an entirely different category. The scale is masterful, and so well adapted to its position as here seen in mid-air from an aircraft photograph showing the Duomo of Florence and Giotto's Campanile in outline, suggesting relatively the proportionate sizes. The tower of the Palazzo Vecchio rises 330 ft. high and was built by Arnolofo di Cambio. The Via de Leoni on the east of this Palace commemorates the lions once kept in Florence by the authorities, partly in honour of William of Scotland.

The elevational sketch of an extremely well-handled and very simple wrought-iron hanging candle bracket shows the design of a gifted amateur, the Rev. Canon Sutton, who, although not mentioned in the "National Biography," must have been a talented man capable of producing so restrained and consistent an article in cottage use, so naive and direct in its design. F. Coldron, a Newark blacksmith, executed this pair of brackets, the only difference between the two being their hook reversed. The writer bought them from the Home Arts and Industries Association Exhibition held years ago at the Royal Albert Hall (somewhere in the eighties), when a vice-president of that enterprising society, started by its president, the late Lord Brownlow. The arms of the brackets curve outward and project four inches.

The most attractive and excellently designed burnished steel sconce of which a detail is reduced from a full-size drawing, was acquired from one of the exhibitions of the Arts and Crafts Society. Its interest, being free of ephemeral fashion, remains distinctive as a masterly example of the work done by the late Ernest Gimson, of Cirencester, Glos. The precise shapings and relative values of the perforations thus carefully delineated exhibit the crisp character of this wrought work so consistently produced. The steel plate was lacquered, and has kept its colour well. It would be difficult to find a better piece of patterning among work done at the present time anywhere of a like sort.

The wrought-iron garden gate at Rusper, Sussex, was executed by Messrs. Jones & Willis from the architect's full sizes.

The photograph reproduced on this page shows a pair of wrought-iron gates from the Lowder Memorial Baptistery adjoining the narthex of the church of St. Peter, London Docks, E. They are not intended to be exposed to the open air and serve to prevent intrusion into the Baptistery, the church being open usually all day. A circulation of air is thus insured at all times. The work was carried out from full size details by Maurice B. Adams, F.R.I.B.A., the architect who completed the adjacent Clergy House and erected this Baptistery. Messrs. Hart, Son & Peard were the craftsmen, who also did the rather unusually elaborate bracket and gearing for lifting the oak spire-like font cover, executed by Messrs. Farmer & Brindley.

Entrance Gate, "Little Benhams," Rusper, Sussex.

Mr. Maurice B. Adams, F.R.I.B.A., Architect.

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ILLUSTRATIONS

Urban Developments in East Kent.

The numerous developments which are taking place in East Kent in connection with the exploitation of the new coalfields were recently described by Professor Patrick Abercrombie in a paper which he read at the R.I.B.A., a report of which was given in our last issue. This paper should be studied in connection with the illustrations given this week, which include a bird's-eye view and elevations of the new village of Aylesham (Professor Abercrombie in association with Messrs. W. J. Archibald and C. J. F. Martindale, architects) and a perspective view of a new inn at Chislet, for which Mr. G. J. Skipper is the architect. An article on the new colliery buildings in Kent is given on page 638.

The Star and Garter Home, Richmond.

We illustrate this week some new views of the Star and Garter Home, at Richmond, *apropos* of a visit to the building by the R.I.B.A., some account of which is given in a note on page 634.

The building was also illustrated and described in our issue for January 30, 1925. Sir Edwin Cooper is the hon. architect.

The Kendrick Girls' School, Reading.

This new school, which was opened by Her Grace, the Duchess of Atholl, D.B.E., M.P., on April 1, and which we illustrate this week, is named after John Kendrick, a wealthy clothier who resided in Reading towards the end of the sixteenth century. By his will, dated December 29, 1624, he bequeathed seven thousand five hundred pounds to the Mayor and Burgesses to purchase "a fair plot of ground within the town of Reading, and thereupon to build a strong house of brick . . . for setting the poor to work therein." After a period of success in which the art of clothmaking was carried on, the institution drifted into chaos, and in 1703 the looms were removed. A long period of mismanagement then ensued, culminating in 1849 in the wresting from the Reading Corporation of the major portion of the endowment. The portion left was then diverted to educational purposes by the Charity Commissioners under the Endowed Schools Act, and this property forms the endowment of the Kendrick Boys' and Girls' Schools, for the latter of which these new buildings are designed.

The site on which this school is being erected was the garden of Sidmouth House, part of the ancient estates of the Corporation, and is approached from the London-road. The site is almost a level one and the subsoil practically all gravel. The new buildings are arranged four blocks, in three of which the rooms are devoted to the ordinary subjects of a school curriculum; the fourth or central block contains the main assembly hall and gymnasium. The buildings are one story only, except the central portion of the southern block, which is two stories in height to emphasise the principal entrance. The classrooms are grouped around two quadrangles which will be levelled and sown with grass; open cloisters form the only means of communication. All rooms are fitted with French casements, opening on to the cloisters, which in suitable weather may be thrown open, thus converting the building into an open air school. The southern and western blocks are mainly devoted to classrooms, the eastern block to science rooms, the south-east corner of south block to a large botanical laboratory, and the central block to the assembly hall, gymnasium and changing rooms. Provision is made for 308 girls, but the plan is so arranged that further class rooms for about 100 girls may be added.

The buildings are heated by low pressure hot water, the boiler being placed in a basement so arranged that approach is possible from road level in Sidmouth-street. The various rooms, both in the new building and Sidmouth House, are fitted with radiators and efficient circulation is obtained by means of turbo-accelerators. Ventilation is natural, ample opening lights being arranged on each side of all apartments. The lighting is by electricity.

An attempt has been made to erect a simple, yet dignified building in plain local bricks giving emphasis to the principal entrance by Bath stone dressings. Internally the whole of the walling, except in assembly hall, is left with fair brick face coloured in quiet tone distemper. The assembly hall has a glazed brick skirting with deal panelling above to level of window cills, above which the walls are plastered. The cloak rooms, &c., have a glazed brick dado. The assembly hall has a pitch pine wood block floor, the gymnasium a teak floor, and other rooms ordinary deal boarding laid on breeze concrete. The general building contractors are Messrs. Malcolm & Leonard Fitt, of Reading; the clerk of works, Mr. C. H. Lanfear; and the school has been designed by Mr. Harry Hutt, F.R.I.B.A., of the firm of Messrs. Chas. Smith & Sons, architects, Reading.

Cottage at Wimereux, P. de C., France.

This cottage, erected for Captain Geo. H. Burnet, of Elrick, stands on rising ground overlooking the sea. The work was carried out by a firm of French builders, Messrs. J. Varlet et Fils, of Boulogne-sur-Mer. The walls are built with Marquise stone, rough cast above the base, the half timbering being of French oak, and the roof is covered with Beauvais hand-made brown tiles similar to our English tiles. Internally the walls are plastered and papered. There was some difficulty at first with the workmen in understanding the English form of fireplace and flues, but after careful explanation this was surmounted. The casement windows are of English pattern, and it was necessary to send over casement window fittings. Leaded lights were also sent over and created a great interest. The cost of the building was about £900 sterling, and worked out at about 7¼d. per cubic foot.

Mr. John B. Mendham, A.R.I.B.A., is the architect.

House in Coombe-lane, New Malden, Surrey.

The facing bricks of this house are of a varied tawny orange colour with deep red dressings and moulded reveals and mullions to the windows. The sashes are steel, and the glass is in lead lights. The front door and hood are in oak, and the weather-boarding to the gable on the south front and elsewhere is in roughly sawn elm, barked. The interior joinery is in Columbian pine, treated with colour and finished with a satin surface. The floors are of Tasmanian oak. The north front faces the road. Messrs. Snelling & Rayment were the contractors, and Mr. Albert W. Moore, F.R.I.B.A., was the architect.

MEETINGS

FRIDAY, *April* 22.

London Society.—Professor A. E. Richardson on "London Street Architecture." At 18, John-street, W.C.2. 5 p.m.

SATURDAY, *April* 23.

Association of Architects, Surveyors, and Technical Assistants.—Visit to Southwark Cathedral. 2.30 p.m.

Institution of Municipal and County Engineers.—Eastern District Meeting, at Ipswich. 10.45 a.m.

MONDAY, *April* 25.

Architectural Association.—Professor S. D. Adshead on "Regional Planning." 7 p.m.

London Society.—Visit to Girls' Village Home, Barkingside. 3 p.m.

Royal Society of Arts.—Mr. J. W. T. Walsh on "Measurement of Light (1)." 8 p.m.

Institution of Structural Engineers.—Discussion on "The Development of Rapid Hardening Cements." 8 p.m.

TUESDAY, *April* 26.

Royal Institute of British Architects.—Exhibition of Modern British Architecture. 3.30 p.m.

Institution of Structural Engineers.—Mr. L. F. Short on "Inspection and Testing of Steel and Cement." At Chamber of Commerce, Birmingham. 7 p.m.

Institution of Civil Engineers.—Discussion on "Bridge Foundations on Transported Chalk," with Notes on Piled and Monolith Foundations, by Mr. J. Paterson Porter. 6 p.m.

WEDNESDAY, *April* 27.

Institution of Civil Engineers.—Annual General Meeting of the Association of London Students.

Royal Society of Arts.—Mr. G. E. Keay on "Fire Waste." 8 p.m.

National Housing and Town Planning Council.—Annual Conferences of Local Authorities in England and Wales. At Town Hall, Manchester. 11 a.m.

THURSDAY, *April* 28.

The Institution of Structural Engineers.—A Debate by Professor J. Husband and Mr. Ewart S. Andrews. 8 p.m.

Institution of Structural Engineers (Yorkshire Branch).—Mr. A. J. Hodgkinson on "Precast Concrete Construction." At Leeds.

Institution of Municipal and County Engineers.—North Wales District Meeting. At Abergele. 11.30 a.m.

FRIDAY, *April* 29.

University of London.—Professor J. Ph. Vogel on "Development of Ornament in Indian Art (1)." At School of Oriental Studies, Finsbury-circus, E.C.2. 5.30 p.m.

Town Planning Institute.—Professor S. D. Adshead on "Replanning Bloomsbury." 6 p.m.

Royal Sanitary Institute.—Discussion on "The Housing (Rural Workers) Act," by Messrs. C. E. Tangye, H. B. Mapleton, and A. J. Redfern. At Guildhall, Exeter. 2 p.m.

Suggested New City Street.

A committee of the City of London Corporation has been considering a suggestion to make a new street from Giltspur-street to Aldersgate-street in order to relieve the traffic in Newgate-street and Cheapside. The proposal has been made by a private member of the Corporation, and the engineer has estimated the cost at £500,000. The street would start from St. Sepulchre's Church, cross the Post Office yard and open land the property of St. Bartholomew's Hospital. It would then bisect King Edward-street and run along the south side of Postman's Park. The proposal is at present in the suggestion stage, and the committee has not yet agreed to submit it to the Court of Common Council.

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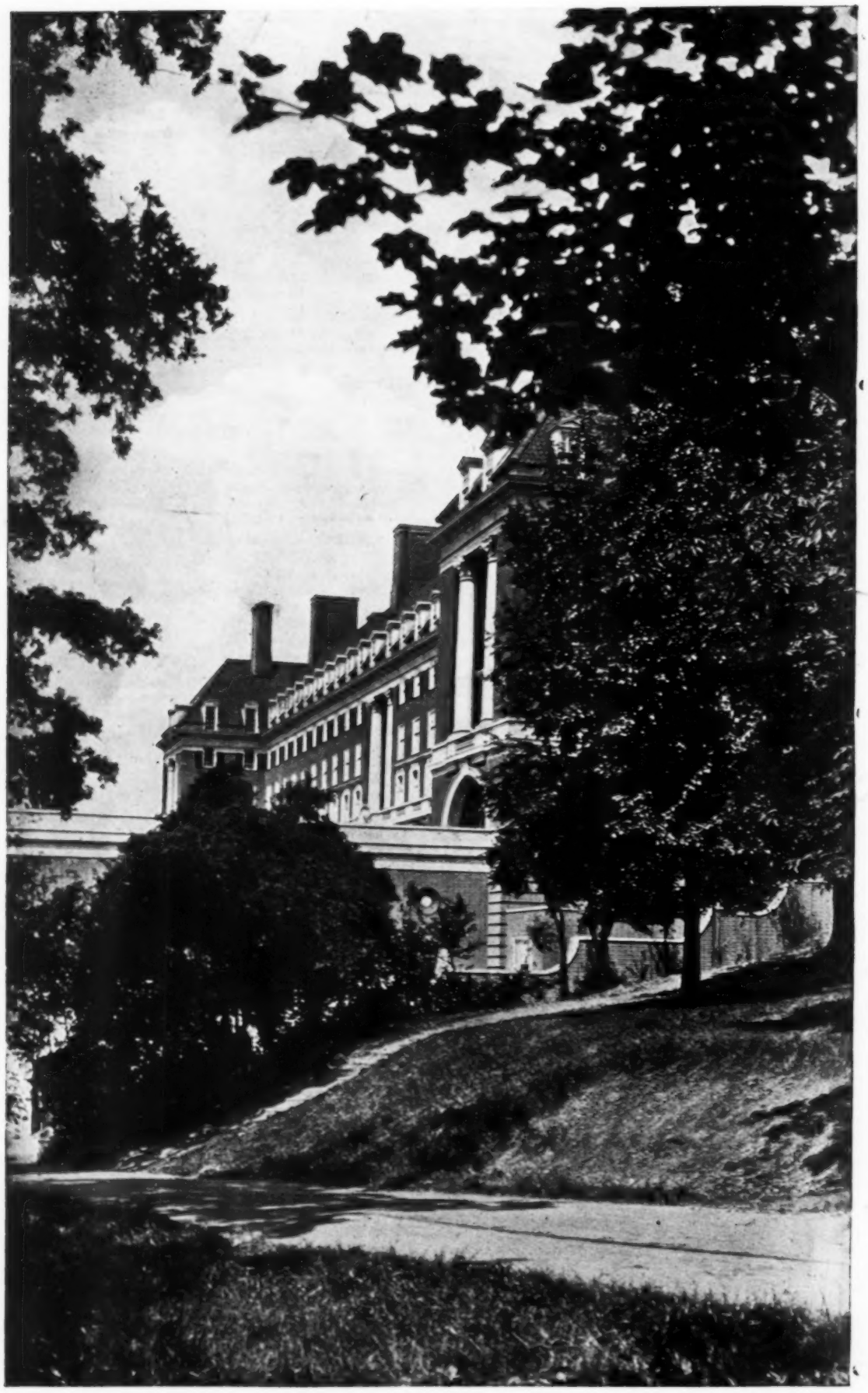

The Star and Garter Home, Richmond, Surrey

SIR EDWIN COOPER, Architect.

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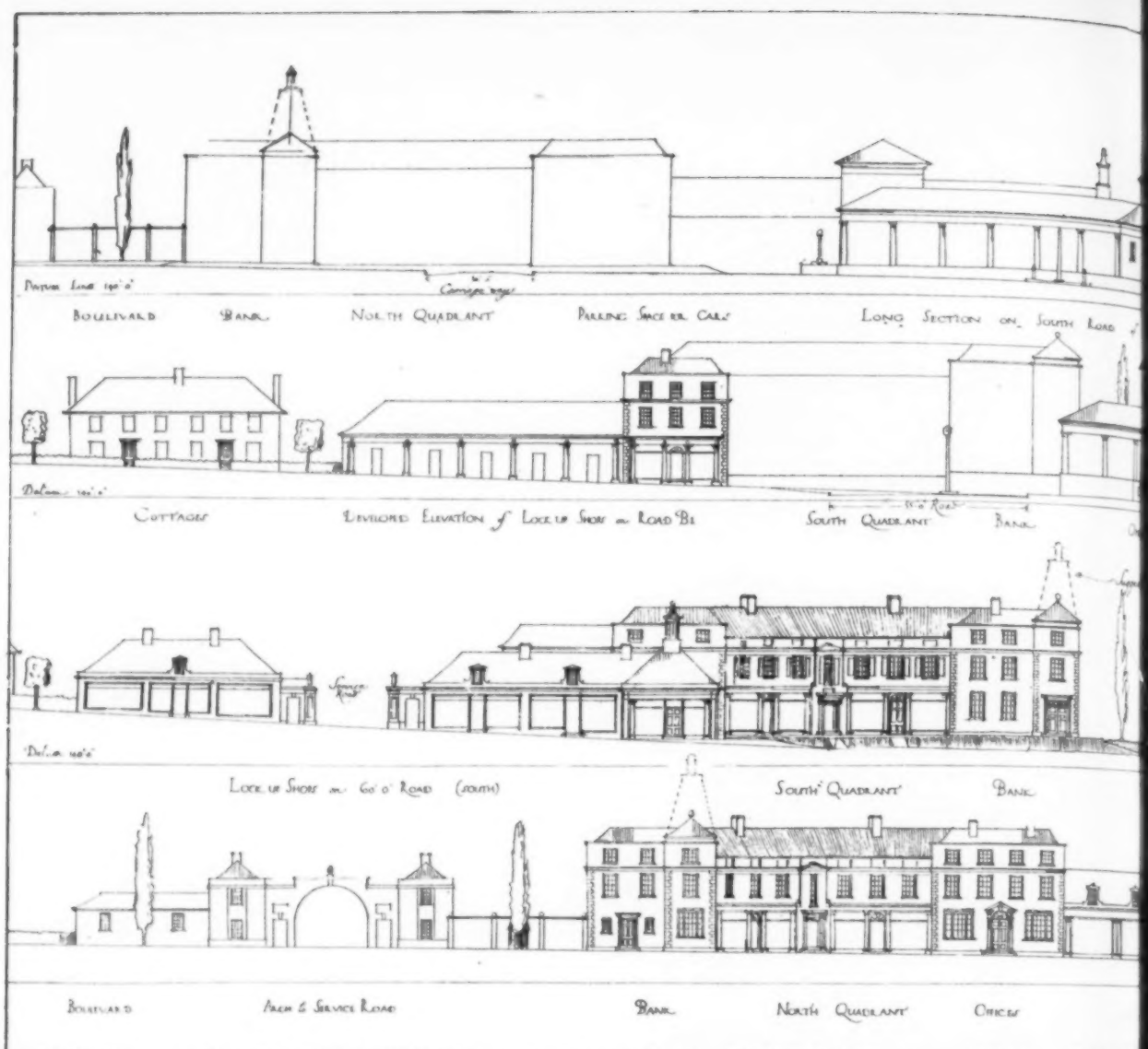
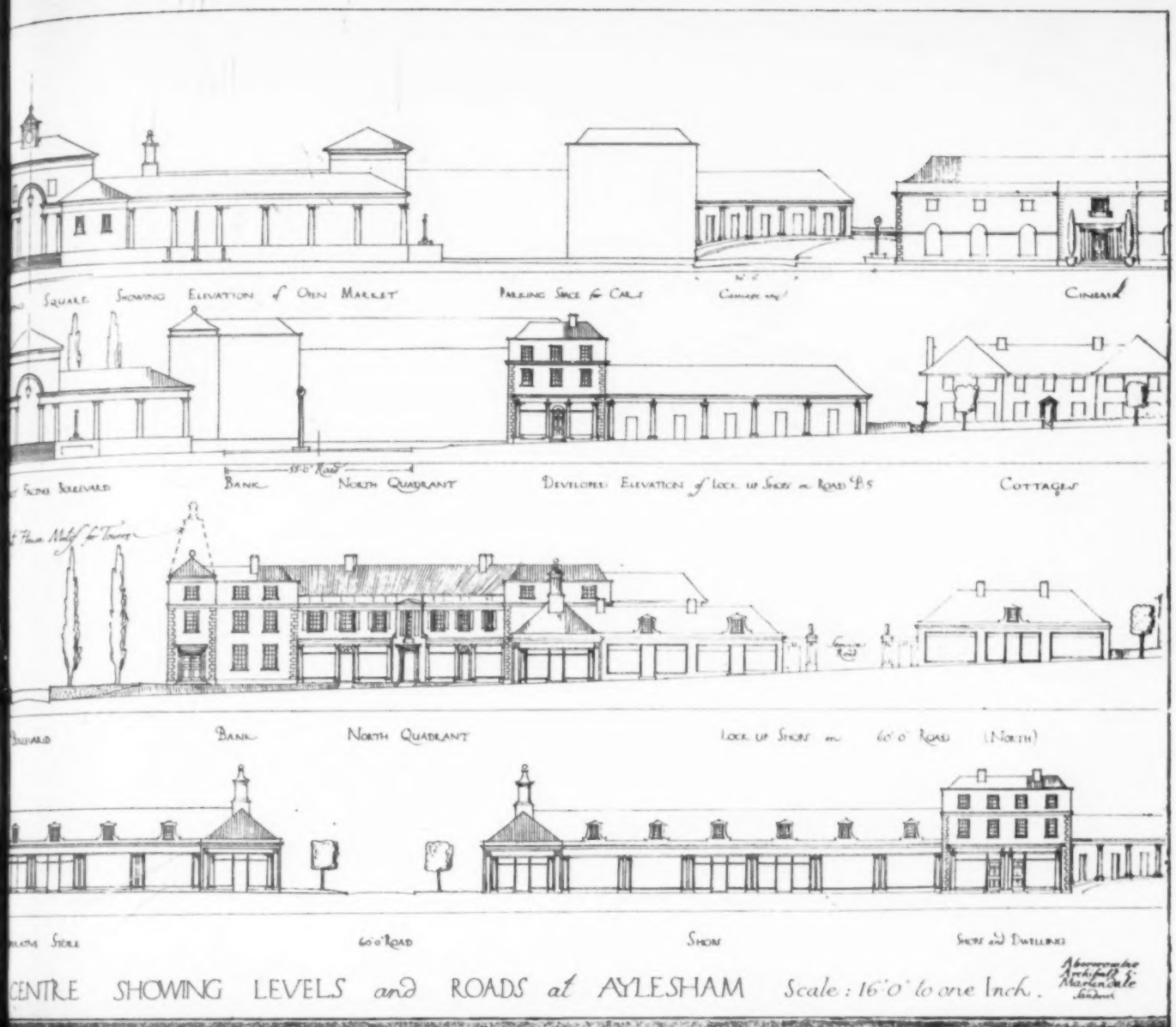
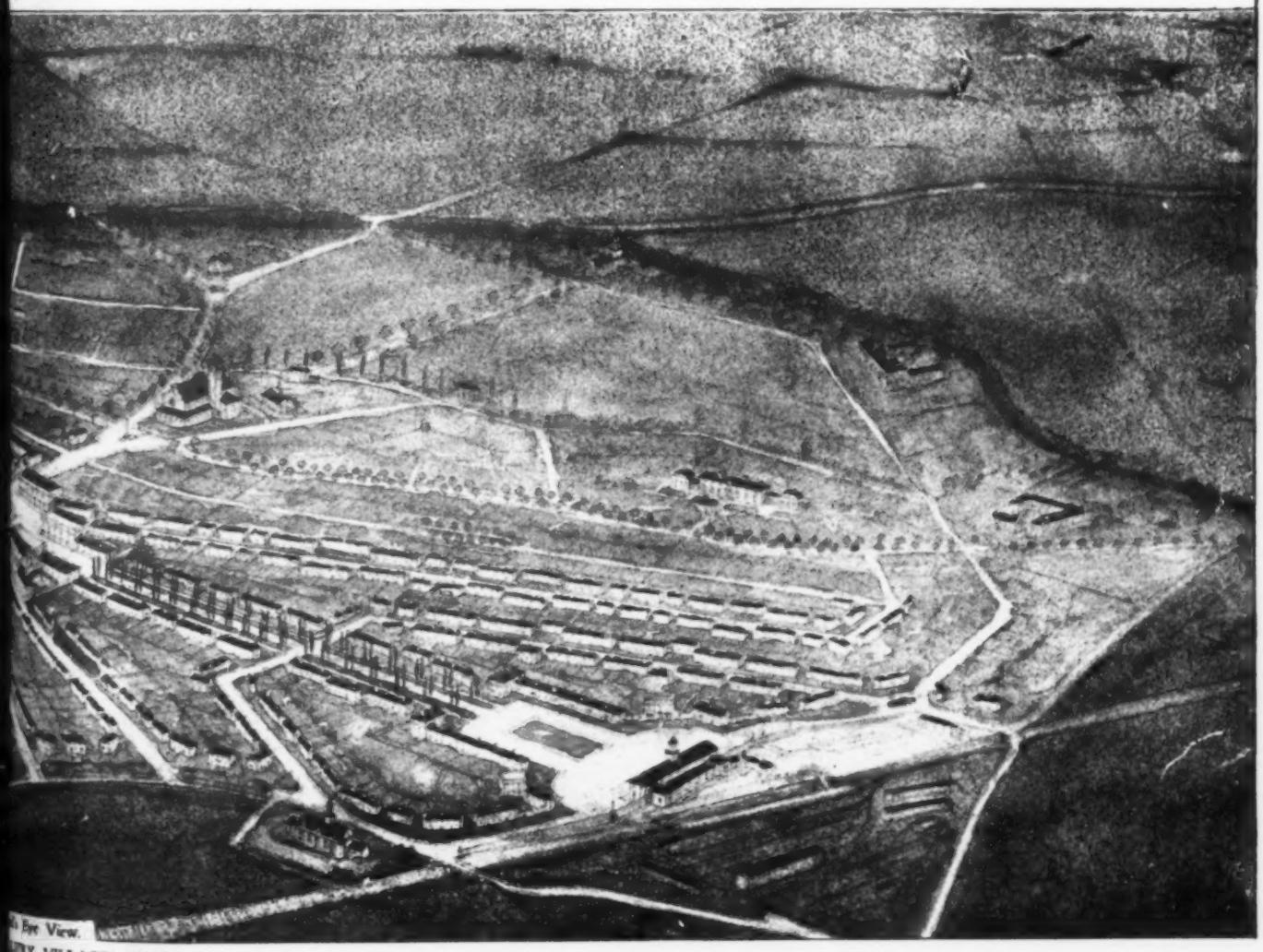


STUDY of ELEVATIONS of VARIOUS BUILDINGS in NEW SHOPPIN

AYLESHA

Professor Patrick Abercrombie, in association





Bird's Eye View.

AYLESHAM VILLAGE, KENT.

Owners. W. J. Archibald & C. J. F. Martindale. Architects.

STAR & GARTER HOME, RICHMOND: THE COWDRAY MEMORIAL CHAPEL.
Sir Edwin Cooper, Architect.

STAR & GARTER HOME, RICHMOND: THE COWDRAY MEMORIAL CHAPEL.

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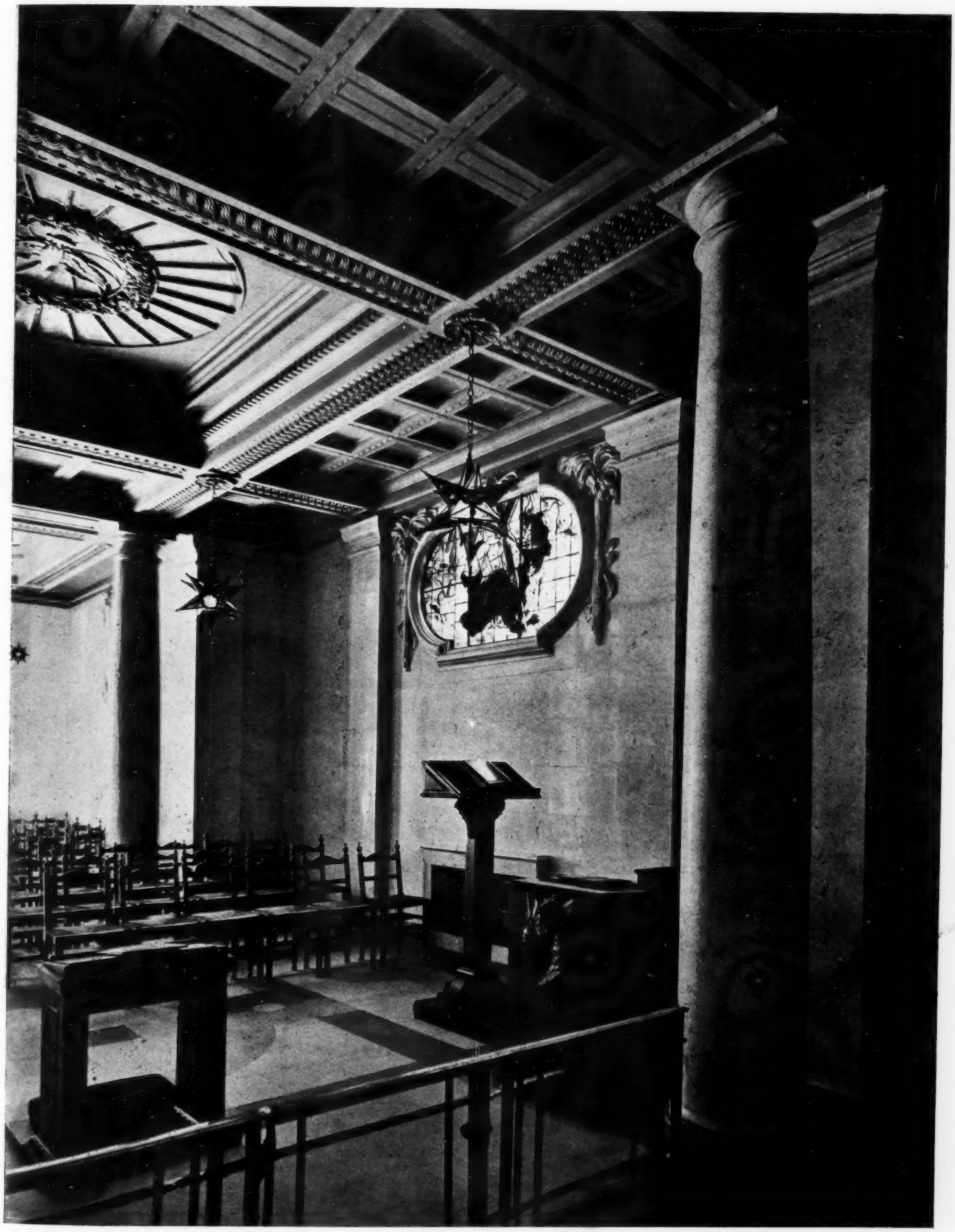
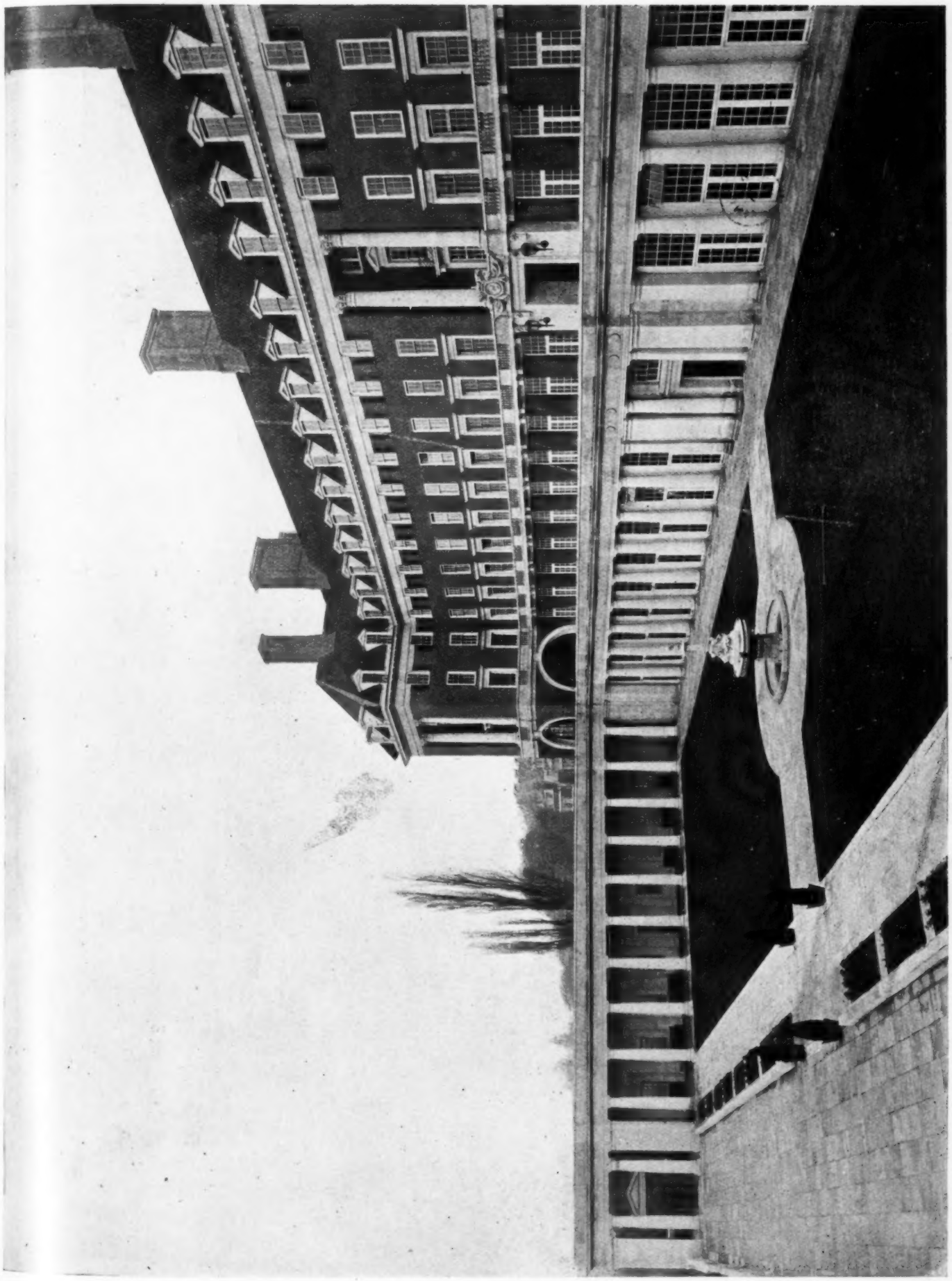


The Star and Garter Home, Richmond, Surrey: The Cowdray Memorial Chapel.

SIR EDWIN COOPER, Architect.

UNIV. OF MICH.

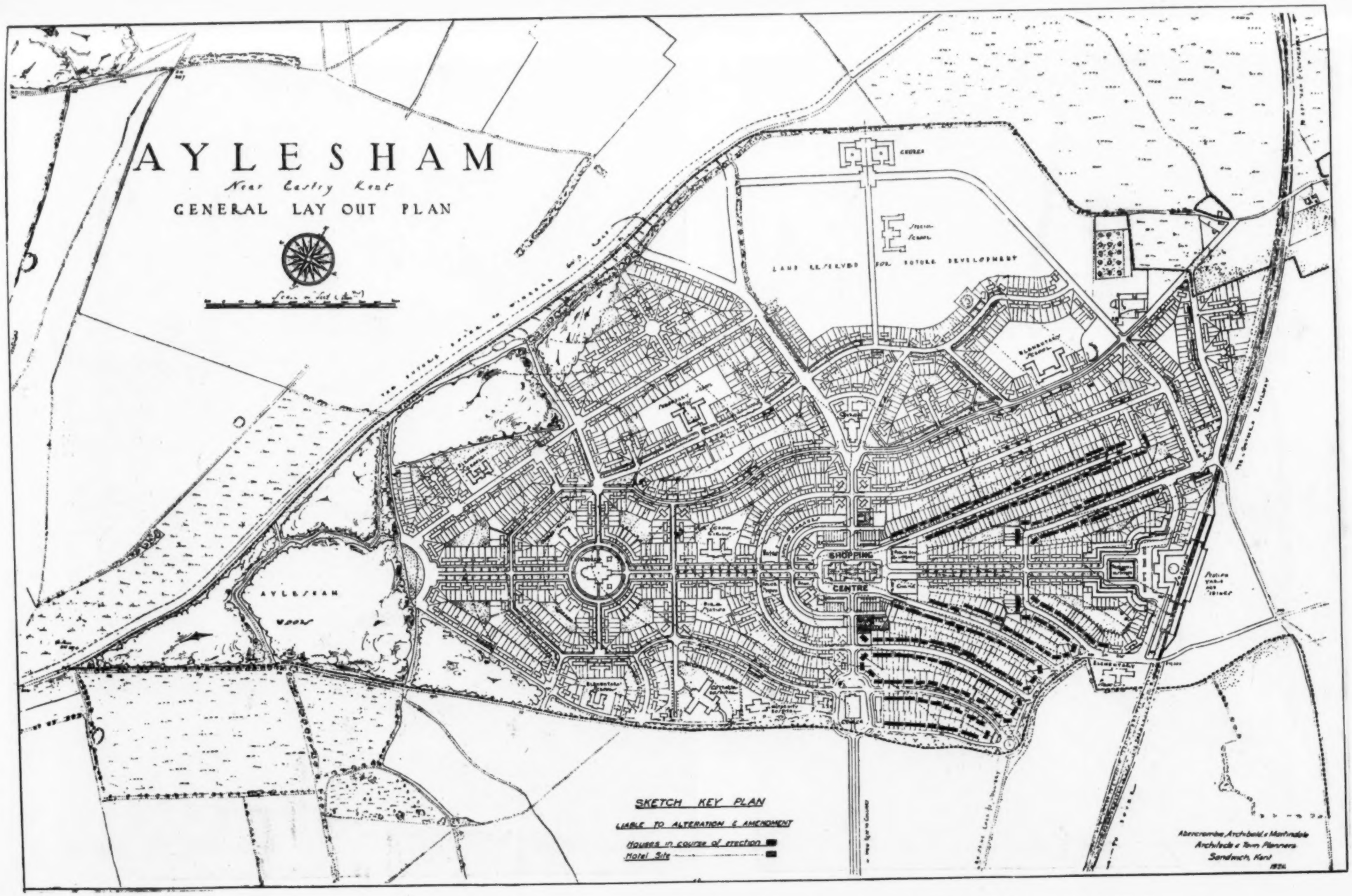


The Star and Garter Home, Richmond, Surrey.

Sir Edwin Cooper, Architect.

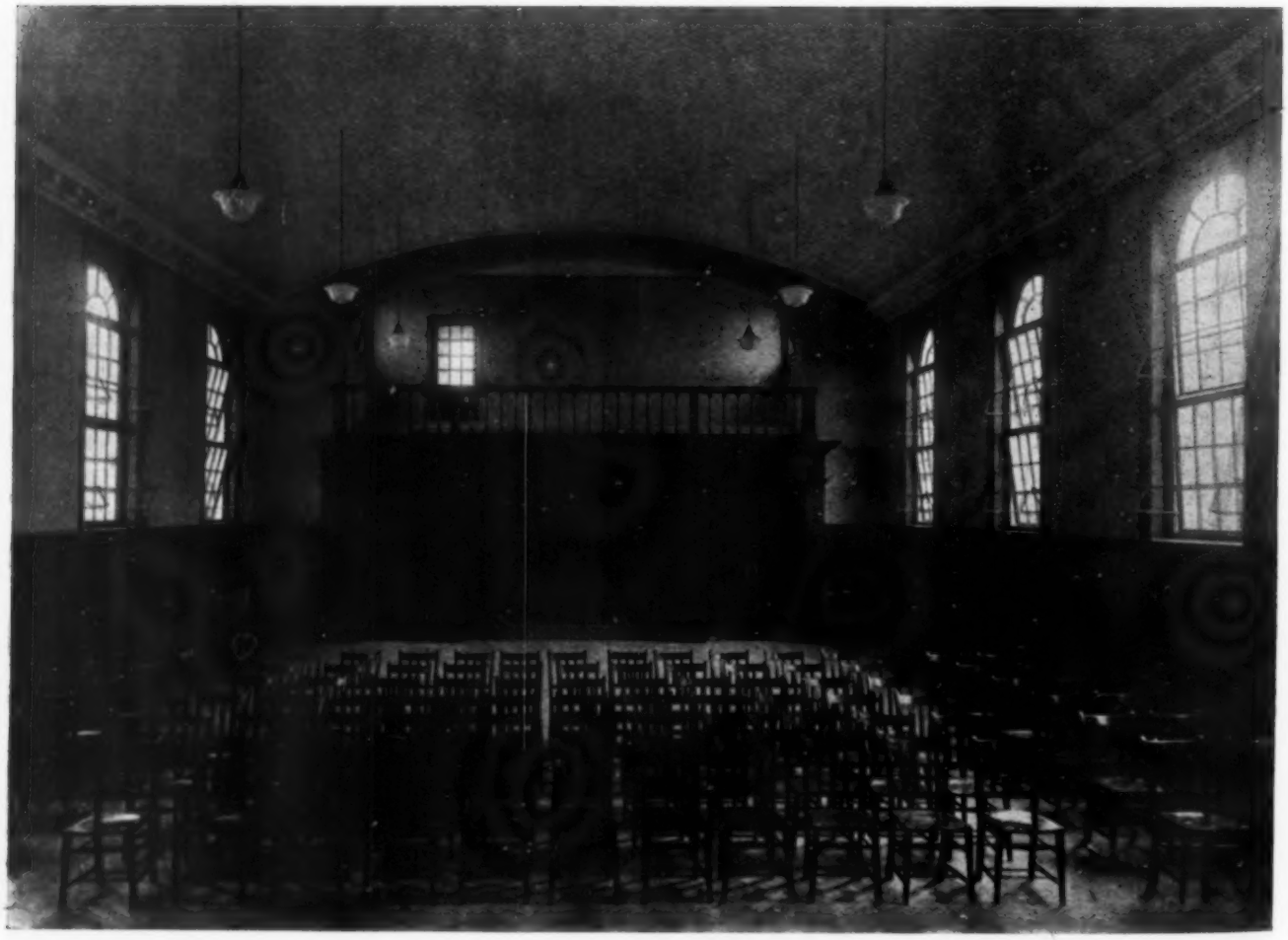
Miners' Inn, Chislet Colliery Village, Kent.

Mr. George J. Skipper, F.R.I.B.A., Architect.



General Lay-out Plan of Aylesham Colliery Village, near Eastry, Kent. Messrs. Abercrombie, Archibald & Martindale, Architects.

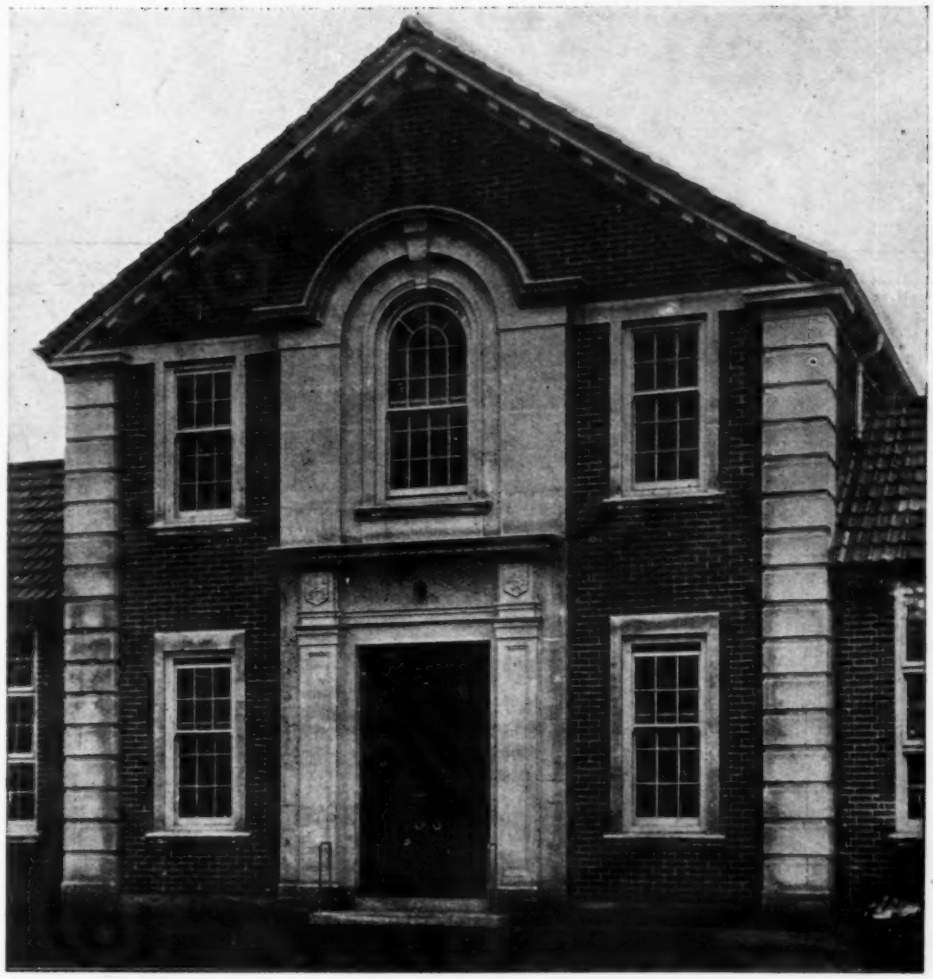
The Cloisters.



The School Hall.

The Kendrick Girls' School, Reading.

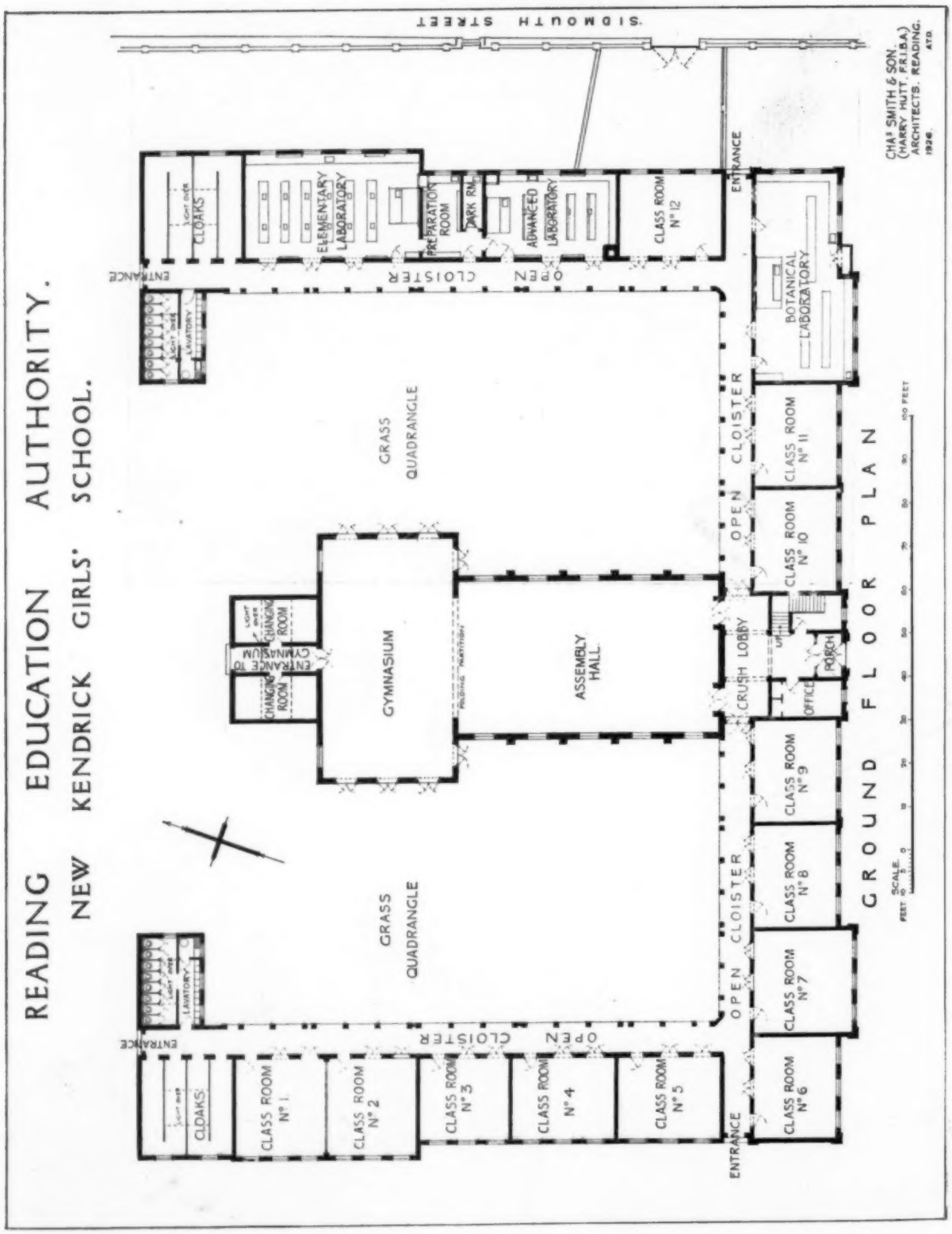
Messrs. Charles Smith & Son (Mr. Harry Hurt, F.R.I.B.A.), Architects.



The Main Entrance.

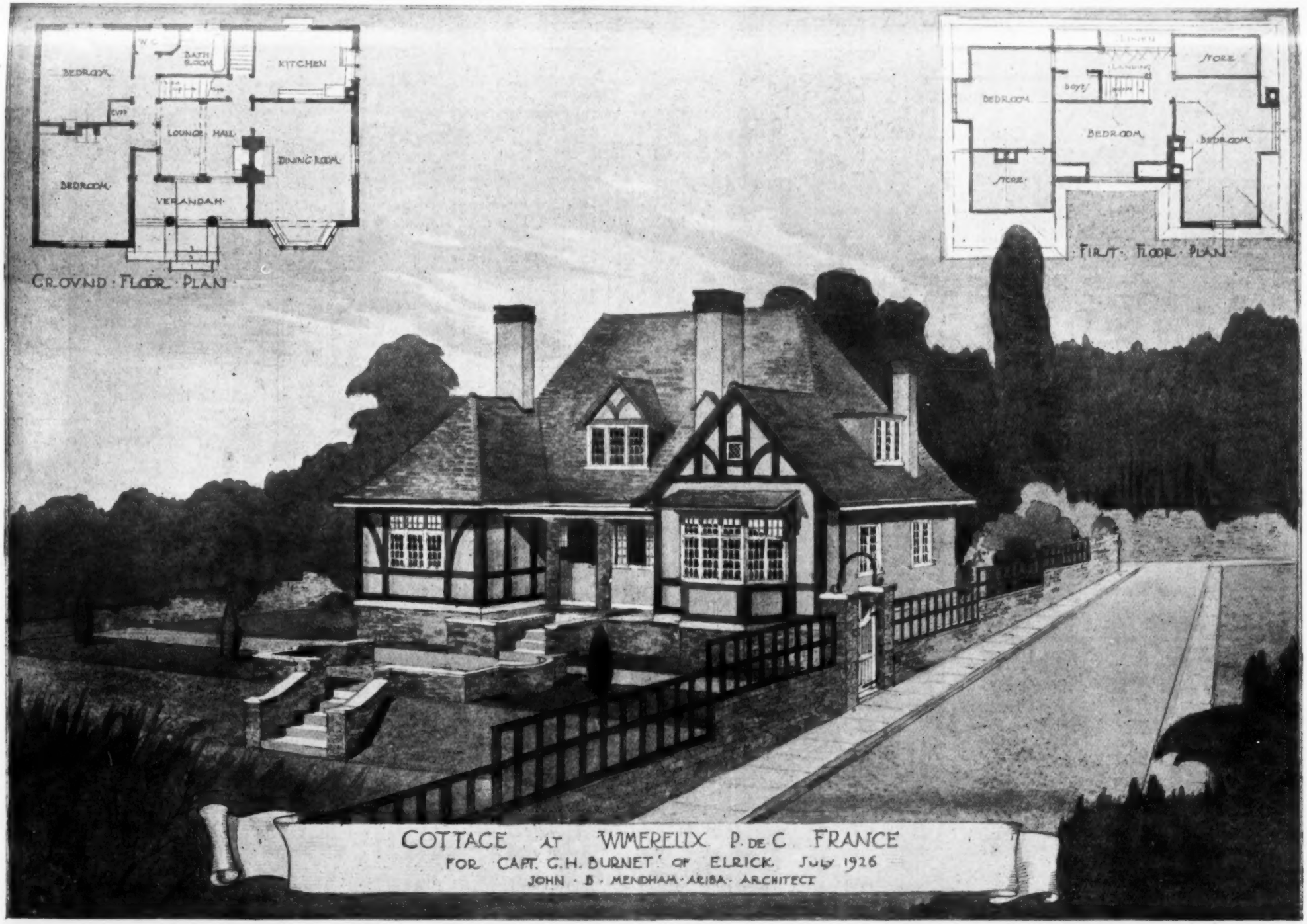
View from the South-East.

The Kendrick Girls' School, Reading. Messrs. Charles Smith & Son (Mr. Harry Hutt, F.R.I.B.A.), Architects.

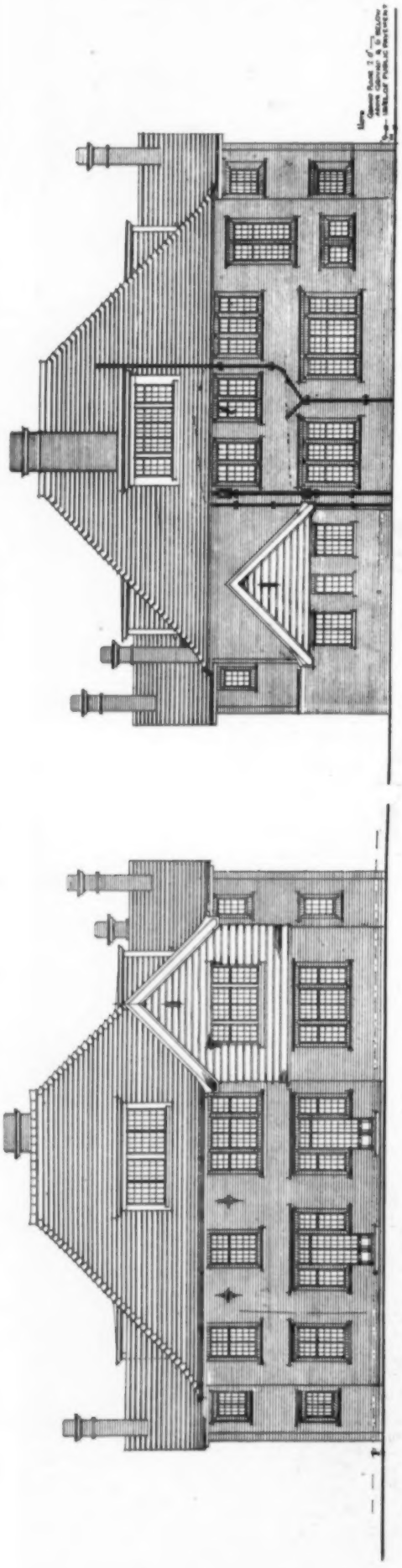


The Kendrick Girls' School, Reading.

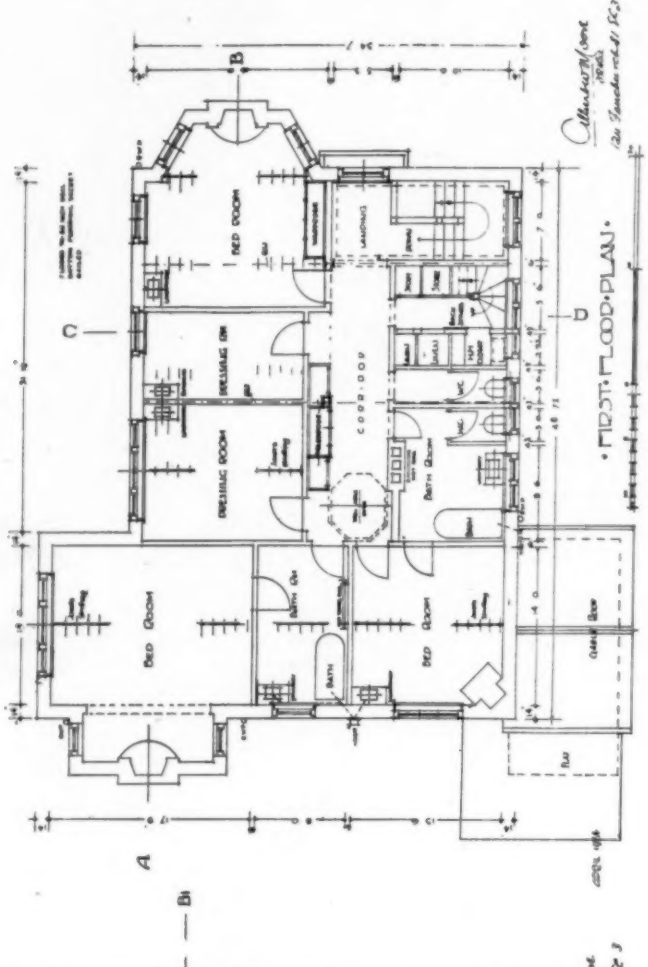
MESSRS. CHARLES SMITH & SON (MR. HARRY HUTT, F.R.I.B.A.), Architects.



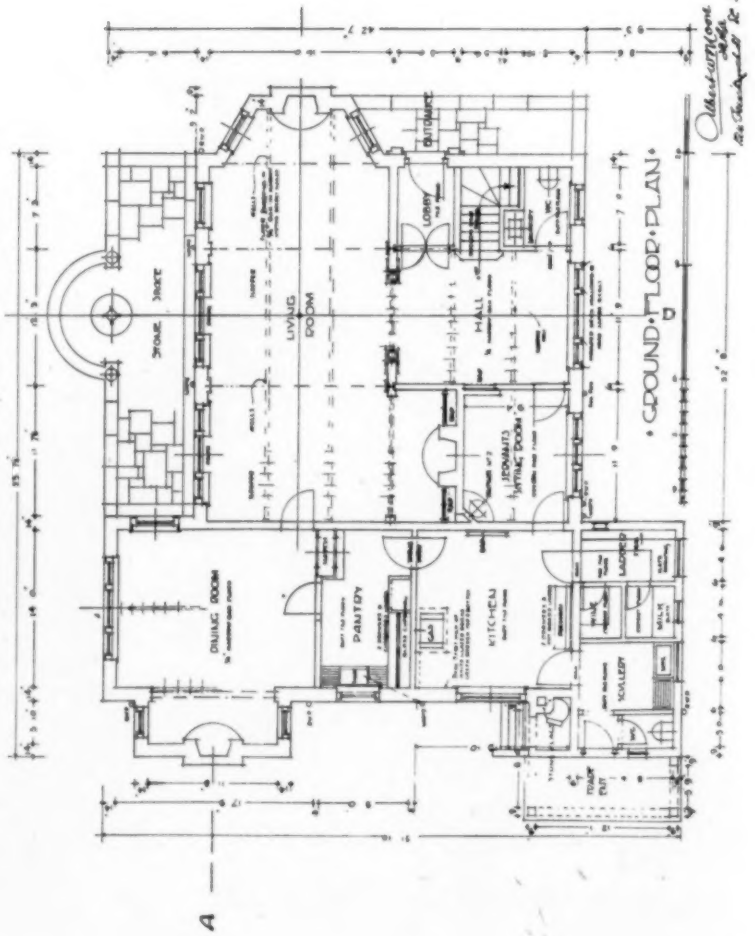
Cottage at Wimereux, Pas de Calais, France. Mr. John B. Mendham, A.R.I.B.A., Architect.



NORTH ELEVATION



SOUTH ELEVATION



House in Coombe-lane, New Malden, Surrey. Mr. Albert W. Moore, F.R.I.B.A., Architect.

PARTHENON STUDIES

By W. R. LETHABY

III.—Athens and London, 1800-1830.

BRITISH enthusiasm in the study of Greek art reached the highest point of its curve in the early years of the nineteenth century. Clarke, Dodwell, Gell, Leake were working in Greece in 1801-2. In 1802 the architects, William Wilkins and R. Smirke, were in Athens. C. R. Cockerell followed with J. Foster in 1810. Large collections of drawings were brought back, many or most of which seem to have been lost. A few of Smirke's drawings are in the British Museum; an account of Cockerell's work is given in the *Hellenic Journal*, Vol. XXIX. Foster, just mentioned, became an architect at Liverpool, but I cannot find out what fate befell his drawings. There is, I believe, at the Museum a report on the temple at Bassæ, illustrated by his sketches. (On records of Greek study, see F. W. Hasluck in British School at Athens, Annual, XVIII.)

Any complete account of the work of these men in Athens cannot be attempted here. My purpose is to bring out, so far as may be possible, such observations in recording or elucidating the Parthenon as may have been first or independently made by these and other British students.

Clarke gives an excellent account of the wonderful prospect from the Parthenon. "The Acropolis of Corinth is so conspicuous from within the nave that the portal of the temple seems to have been contrived for guiding the eye of the spectator to that point. The sea resembled a shining lake surrounded by mountains." (Compare the similar view through the Propylæum given in last part.)

He noted of the Parthenon. "This building in its entire state was lighted only by lamps. Among the remains of sculpture in the western pediment the artists [of Lord Elgin] had observed not only the traces of paint with which the statues had been anciently covered but also of gilding. . . It was usual to gild the hair of statues which represented deities."

Gilded bronze had been attached to the sculptures, "little bits of the bronze itself the formatori had found in the work." Of the metopes he observed "A person putting his hand behind the figures may perceive the polished surface."

He gave a delightful description of "Helios," of the east front while it was yet in the narrow angle of the pediment. "To a spectator from below it seemed to be struggling to burst forth from an abyss."

Dodwell has some remarks on the use of colour. He noticed the traces on the entablature of "shields, helmets, and other pieces of armour, probably those taken away by Lachares." He gives the first good drawing of an antefix from the eaves of the temple, and seems to have been the earliest to remark that the lions' heads near the four corners of the building were not set on square but looked outwards diagonally. Dodwell noticed some red colour between the joints of the columns of the Propylæum (being part of the testing for close jointing). Gell has left a great number of topographical drawings and sketches now in the Print Room of the Museum Among these are prospects from the west pediment of the Parthenon to the east and the west; a drawing of the temple which shows the marble beams in the west portico; and a slight sketch of the female figure in the right-hand angle of the west pediment.

Wilkins, in his book on Athens, published in 1816, mentioned the entasis of the columns and gave an excellent general account of the construction of the temple. He argued against Stuart's idea that the temple had been hypæthral. Light was only admitted to the cella through the great doorway.

Wilkins wrote an excellent and sensible essay on the origins of Greek architecture, which closely agrees with modern theories. Bundles of canes or reeds bound together first suggested in Egypt the idea of sculptured or fluted support. The reeds grow tapering, and hence the bundle and the column also tapered. The Greek word *rabdosis* which signifies reeding, is found in the Erechtheum accounts applied to the fluting of columns.

In a later essay on the sculptures, Wilkins called attention to the fact that the reclining figure of the eastern pediment, still usually called "Theseus," was very like the Dionysos on the monument of Lysikrates, and he suggested this name for the Parthenon statue.

Michaelis says that Cockerell in 1810 measured the columns to determine the exact entasis which had already been observed by Wilkins. "This entasis is a slight expansion of the outlines which, in the columns of the Parthenon having a diameter in the lowest drum of 1.90 metre, amounts only to 17 millimetres on each side and is of vast importance in giving life to the outline."

Cockerell knew of the limestone patch on the central axis of the marble paving of the cella, and understood it to mark the site of the pedestal of the great gold and ivory statue. His restoration of the plan of the cella with its internal columns, given in Bröndsted's work, 1826, and in *Museum Marbles*, 1830, agrees with the data given by Woods as mentioned next. Cockerell supposed that there were only 16 internal columns, but this, as now known, is too few. Unfortunately he resumed and rehabilitated the theory of lighting the temple through an opening in the roof.

In 1816 the fourth volume of *The Antiquities of Athens*, ably edited by Joseph Woods, was published. Woods included engravings of the Nointel drawings, and compared the sculptures with them. He thus settled the place of three large fragments of figures in the western pediment on the left of Poseidon (our right). "There are fragments of what I suppose to be the three following figures. The first [now Iris] has a metal girdle; the second [now Amphitrite] has a broad girdle marked on the stone, no part of the thigh is exposed, but it is broken off scarcely below the place marked in the drawing as the junction of the garment; of the third there is nothing remaining but the lap and what seems to be the leg of a child in her right arm."

In this same year appeared Visconti's account of the sculptures in which we have seen the figure of Iris was mistakenly assigned to the east pediment; of course the foreign scholar had to be accepted, and Woods' correct identification was neglected until after nearly a century it was forced back on the Museum authorities by foreign scholars. One of our main failings in these questions seems to be holding on to lost causes and not knowing when points are proven.

Woods visited Athens in 1818. In the British Museum collection of his papers (Add. 22152-3) are several accurate drawings made by him. One is a careful study of the roofing system of the Parthenon. This shows the construction next to the lower angles of the pediments. There was an antefix over every triglyph and one between each of these divisions; the antefixæ were detached and did not correspond to the marble tiles, of which there were three to every two of the antifixæ. Another drawing is a valuable plan of the paving of the temple. Although a large part of the cella was still occupied by a Turkish mosque "the rough limestone" area which was covered by the basis of the great statue of Athena is indicated; so are the positions of internal columns. "The stones coloured yellow are 14 or 15 inches thick; the others from 8 to 9. All seem to be bedded on rough masonry or on the native rock." This plan is dated February, 1818.

That these drawings were the work of Woods is confirmed by the account of the paving of the Parthenon given in his *Letters of an Architect*, 1828. He was in Athens from February to May, 1818, and met there Lusieri and Fauvel. We have seen that the floor area had been cleared by Lord Elgin's agents. As Woods does not claim to have observed the evidence for the situation of the statue and columns for the first time, the discovery must have been made when Elgin's party uncovered the white marble floor. Woods says that there were four blocks of stone 5 ft. 8 in. square in the floor of the opisthodomus on which columns had stood. "The cella floor was covered by marble slabs 8 in. thick. A course of thicker stones 4 ft. wide and 14 in. thick formed a basis for internal colonnades. It is this course and the four large stones in the opisthodomus which are coloured yellow on the plan. Within this course in the cella, about 15 ft. from the walls, the central portion was sunk a little. At one angle of this series of slabs [the thicker course] are faint traces of a column about 3 ft. 9 in. in diameter, and we may ascertain that the [normal ?] distance from centre to centre was about 11 ft. 6 in., while in the other intervals [next the angles ?] the space from centre to centre was 12 ft. 11 in." As remarked in regard to Cockerell's plan, such a spacing of the columns is much too great, but the record of the traces of an angle column is valuable. It is sketched on the plan at the N.W. corner. "Within the sinking of the pavement already mentioned we find again the 8-in. marble paving, but in one part slabs of limestone occupy its place. These are supposed to have supported the statue of the goddess." The exact position of one angle of this limestone space is indicated on the plan; the rest was covered by the mosque. Hence it was that in Cockerell's plan the statue base, while shown in the right place, is more square than its proper form. The pivot holes and quadrants for the double doors at the west are shown on the plan, and in the cella behind the statue basis in the centre of the transverse row of columns is a group of four holes in which some object must have been fixed. In restored plans a column occupies this position.

According to Woods' *Letters* "The ceiling of the pronaos and posticum was formed by marble joists supporting slabs which contained lacunaria, but in the lateral peristyle these slabs were laid from wall to wall without joists."

On the exterior he noted the traces of the shields once on the architrave. "There is occasionally a slight green circular stain produced by the edges of the shields. They were about 3 ft. 6 in. in diameter. Under each triglyph are holes by which the bronze letters of an inscription were fixed." Everyone agrees that the shields were bronze, but the evidence of the green stain is important. The traces were noted of external painting and gilding. The spaces between the columns of the pronaos were filled with a metal grating on a marble cill. The doorway was 16½ ft. wide without any frame. "We may conclude that this part was of metal as in the Propylæa." On the floor were indents which had probably been filled with metal plates for the opening of the doors. The pivot holes were clear of the walls. Evidence for bronze door frames in the Propylaea is given in detail. The general account of Athenian buildings is full and informing. Altogether this is a delightful book. Woods also wrote *An Essay on Modern Theories of Taste*, 1808.

For the plan of the cella see also the second edition of Stuart's *Antiquities*, edited by Kinnard (1825-30, II, p. 39).

The first Synopsis of the Museum Sculptures was published in 1817. Taylor Combe, the editor, was, I believe, the first to give the names Helios and Selene to the chariot groups formerly known as Hyperion and Night.

In 1817-18 H. W. Williams made some excellent landscape views of Athens, which were engraved and issued in a really beautiful volume—the originals are, I believe, in the Print Room of the British Museum. Inwood was working on the Acropolis, specially studying the Erechtheum about this time. In 1818

Athens was visited by the architect, G. L. Taylor, who is said to be the author of some excellent water-colour drawings of the Parthenon and panoramic views of the city, now in the Victoria and Albert Museum. In an autobiography published many years later it appears that Taylor was only in Athens a short time, and he does not speak of having made any careful drawings. I therefore feel some doubt as to the authorship of these excellent drawings, although one of them bears the date 1818.

The exquisitely minute restored reproductions of the frieze by Henning, which he is said to have carved in slate, was begun about 1820. Cockerell spoke of it as "a beautiful restoration." Interesting references to it may be found in *The Builder*, 1877.

The Rev. E. J. Burrow, in a little volume on the sculptures, dated 1837, of which, however, there was, I believe, an earlier edition, compared the composition of the central group of the west pediment with the coin of Athens, where Athena and Poseidon stand on either side of an olive tree, and he suggested that probably such a tree rose in the centre of the pediment. He seems to have been the first to mention in connection with the east pediment the relief of Zeus and Hephaistos, illustrated by Winckelmann. He gave good descriptions of the figures and noticed "the profusion with which ornaments, most probably gilt bronze, were lavished." He brought out the arguments for the sculptures being accepted as the works of Pheidias.

Donaldson (1795-1885) studied in Greece about 1820 and did some work on the Parthenon. According to Penrose it was Donaldson who first observed the inclination of the axes of the columns of the peristyle. He brought back some of the glass beads from the capitals of the Erechtheum and scales of colouring matter. A book of his drawings is in the Institute Library.

With him may be mentioned Wolf, another architect, who worked on the Parthenon and left a very interesting collection of drawings, also at the Institute; these are largely of constructive details.

The illumination of the structure and sculpture by gay colour and gilding was established by a long series of observations some of which, such as the descriptions of Dodwell and Woods, have already been mentioned. An important contribution was made by Lewis Vulliamy, working in Greece from 1818 to 1821, who published an engraving of the painted pattern on the cornice of the pediment. "The cymatium of the raking cornice of the Parthenon has been conjectured to have been painted, but no one has before discovered or made known any of the ornament. This specimen is drawn from two fragments, one of which was a piece of the angle; the painting was much obliterated, but enough remained for one part to supply what was wanting in the other." It seems to have been Vulliamy's discovery which was referred to by an American visitor to Athens in 1835. "I clambered up to the very apex of the pediment and, lying down, leaned over and saw under the frieze [?] the acanthus leaf [?] delicately and beautifully painted on the marble, and, being protected, still retaining its colouring. It was out of sight from below and had been discovered by the enthusiasm of a young English artist." (J. L. Stevens' *Incidents*, etc.) In 1826 Angell and Harris published an account of their discoveries in Sicily with some records of colour decoration. The bright glitter of the temple as it was when new born from the brain of Pheidias was well suggested by the Rev. C. Wordsworth, who visited Athens in 1833. "From the parts still standing and fragments on the ground the architect will restore the temple in its original beauty, symmetry and colour. The meander winding beneath the cornice [of the cella], the honeysuckle ornament sprouting below the pediment, the shattered plate-band of a triglyph which he lights upon tinted with azure, and the guttæ of the same hue, looking like real raindrops, will furnish him with sufficient clements." C. H. Bracebridge, writing from Athens in 1836, told Wordsworth of archaic fragments recently found by excavation. "Remains of painted figures and heads, and especially fragments of columns, triglyphs, and capitals which still retain their original colours, blue, red and the brightest ultramarine. The capital in the Theseum and vestiges about the Erechtheum show that the temples were in part coloured, but no proof has been given before the discovery of these primitive Attic remains that bright and highly contrasted colours were used generally on marble edifices."

This overwhelming evidence of the liberal use of colour was for a long time ignored or recognised with pain as rather scandalous. About 1830 a committee was appointed to inquire into the evidence, and their interesting illustrated report is printed in an early volume of the sessional papers of the Institute. The use of colour had to be proved against the tastes and opinions of learned men. The editor of the small second edition of Stuart's *Antiquities* (1841) writes: "There is a circumstance recently ascertained to its full extent which gives contradiction to our notions concerning the purity of Grecian taste and its antipathy to coarseness. The Greeks *painted their temples* not merely in subdued but with glaring colours, reds and blues and yellows. Nay, there is a shrewd suspicion that the sculptures were painted like the figurehead of a man-of-war. And unluckily the evidence for these incredibilities is exasperatingly clear; the statements of the German architects employed by King Otho, and the details given by Mr. Bracebridge leave no doubt of the facts. Still, we have doubts respecting the date of the practice. We cannot believe that the architects of the best days of Greece would select the purest materials in the prospect of a mask of tawdry colour. Neither is it probable that if this vile practice had existed in olden time, no hint of it should occur in Pausanias or Vitruvius. That Ictinus, to say nothing of Pheidias, practised these atrocities while Pericles approved can only be believed—*quia impossibile est.*

Major, afterwards Colonel, William Martin Leake, sent on a military mission to Turkey early in the century, began a thorough exploration of Greece. Leake had a special genius as well as indefatigable zeal for topographical research. He was associated with Hamilton in bringing the Elgin marbles to England. Born 1777, elected to the Dilettanti Society in 1814, he died 1860.

Leake, in 1821 first opened the way to the full explanation of the sculptures of the west pediment by showing that the spectator figures behind the chariot of Athena were Cecrops and his daughters. In 1841 he extended the scheme and proposed to put figures in the two "gaps," one on the left-hand side, the other on the right. He observed of the metopes that the Centaur subjects were only on the south side; for the rest "the fabulous wars of the Athenians supplied part of the subjects."

He was the first to identify the six gods who form the group on the left of the centre of the east front.

His work in regard to the west pediment has hardly yet been absorbed. His demonstration in regard to the group of gods (partly founded, as we saw, on the observations of the veterinary surgeon that a pair were not twins and that another had his foot against a staff) was long resisted. In Vaux's *Handbook*, 1851, we are told of the figures which Leake ten years before had shown must be Hermes and Dionysos: "The two young men were Castor and Pollux. The nearer one has been conjectured to be Mercury on the ground that the figures are of different ages." The spear staff of the other figure is not even mentioned, and its old name is maintained. Furtwängler named the figures as Leake had done, but so late as 1903 Dr. Murray was still undecided. He continued to suppose, however, that Hephaistos had a "club foot," an idea that goes back to Stuart's misunderstanding of another figure. I refer to these points as examples of our conservatism; Dr. Murray was really a very able man who did much for the department under his charge. In the *Guide* for 1908 Leake's identifications of 1841 were adopted by way of Furtwängler.

An account of the Parthenon and its sculptures appeared in a volume of *Museum Marbles* issued in 1830, which was edited by Cockerell. It was followed by volumes on the Metopes (1835) and the Frieze (1839), by Hawkins. These were all illustrated by admirable engravings from drawings by Corbould, which were entirely exquisite in their tender truth. After a century of change it is impossible to discern the least fault in that subtle essence—expression. Being an official work they have not been appreciated as what they are—about the most perfect illustrated books ever produced in England. The volume of 1830 was illustrated with a plan and elevations by Cockerell. The plan has already been mentioned. The restorations of the sculptures in both pediments have hardly been improved. Athena is near the centre of the east pediment, as an important standing figure, but this had already been suggested by Elgin's party as shown by a drawing in the Museum.

Cockerell, or more probably Corbould, established the existence of a second chariot—that of Poseidon—in the west gable. "The necessity to counterbalance the Car of Victory [Athena's] is apparent; and the vacant space indicated in the drawing of Carrey clearly shows that such a one once existed." The charioteer on this side was Amphitrite, and her car was accompanied by "a female who assists to guide the horses"—that is the figure we now know as Iris.

It was recognised that, as Stuart had seen, the left-hand gap in the western pediment between the reclining male and Cecrops would require a figure to fill it and one was inserted in the restoration. This conclusion was long resisted, but it was taken up again by Furtwängler, who also adopted Leake's view that there must have been a figure in the right-hand gap as well.

Corbould's original drawings are fortunately preserved in the Print Room, and amongst them are one or two which were never engraved. Hawkins wrote of the artist: "To his close examination of the sculptures and to his just discrimination of their various merits, the author feels much indebted for many illustrative remarks." It was probably Corbould who first suggested that Poseidon had a chariot similar to that of Athena in the other half of the pediment. Westmacott (1831), having mentioned the latter, goes on to say: "This group was evidently balanced by the chariot of Neptune [Poseidon], for it is not possible to account for so great a space without it; and Mr. Corbould, who has examined Carrey's drawings with the greatest attention, finds it [the hypothesis] supported by the two figures which next appear." One of these was "Amphitrite" (see Ellis's *Elgin Marbles*, 1833). Cockerell is here not mentioned, and in a restored west view of the temple made by Cockerell and engraved in H. W. Williams's *Select Views in Greece*, 1829, the second chariot does not appear. Of the east pediment Westmacott pointed out that the startled female could not be Iris, that goddess being always represented with wings.

Hawkins himself brought out the fact that the girls in the middle of the east frieze carried stools instead of baskets, as had previously been said. The frieze, he believed, was sculptured in place. The western metopes had reference to the Athenian Victory at Marathon.

One would have thought that so soon as it had been pointed out that the girls carried stools that would have been settled, but in Vaux's *Handbook*, 1851, we are told that they bore "unascertained objects, apparently stools. In the procession maidens carried stools, but these occupied a subordinate position. We should rather expect to find the Canephoroi." A good example this of ambiguity rather than of bold denial or, better still, frank acceptance.

SOCIETIES AND INSTITUTIONS

YORK AND EAST YORKSHIRE ARCHITECTURAL SOCIETY.

The annual general meeting of this society was held on April 12. The following officers and council were elected for the year 1927–28 :— President, Mr. J. Stuart Syme, L.R.I.B.A.; Vice-Presidents, Mr. W. S. Walker, F.R.I.B.A., Mr. Alan E. Munby, M.A., F.R.I.B.A., Mr. G. D. Harbron, F.R.I.B.A.; Hon. Treasurer, Mr. E. A. Pollard, L.R.I.B.A.; Hon. Auditors, Mr. J. E. Reid, L.R.I.B.A., and Mr. S. G. Highmoor, M.C.; Hon. Secretary, Mr. R. Jackson, A.R.I.B.A. Council: Mr. H. Andrew, F.R.I.B.A., Mr. W. E. Wiscomb, Mr. A. B. Burleigh, Mr. J. M. Dossor, F.R.I.B.A., Mr. F. J. Horth, F.R.I.B.A., Mr. S. R. Kirby, L.R.I.B.A., Mr. L. Kitchen, F.R.I.B.A., Mr. C. Leckenby, A.R.I.B.A., Mr. S. Needham, L.R.I.B.A., Mr. A. Pollard, F.R.I.B.A., Mr. F. Porteous, Mr. J. E. Reid, L.R.I.B.A., Mr. T. Snowden, L.R.I.B.A., Mr. A. N. Thorpe, Mr. T. W. Whipp, A.R.I.B.A., Mr. S. Wilkinson, A.F.C., F.R.I.B.A.

The prizes awarded by the Society were presented as follows :—

Measured Drawings Prize: Mr. S. A. Suggett, Scarborough; Mr. R. A. Pratt, Scarborough.

Prize for Measured Drawings of an Old Bridge of Architectural Interest: Mr. H. R. Stott, York.

Mr. Munby's Prize for the Best Essay on Local Decay of Stone: Mr. J. G. Davies, York.

The Society has a membership of 110, including hon. members.

The retiring President in his address referred to the activities of the Society during the past session, and spoke with satisfaction of the large increase in membership during recent years.

The new President expressed the gratitude of the members to Mr. Dossor for his untiring efforts in promoting the interests of the society and the welfare of the profession during his term of office, and for the very able manner in which the latter had conducted the affairs of the society. He also spoke with pleasure of the hearty co-operation which existed between the members from York and Hull. In referring to the Registration Bill now before Parliament, he expressed the opinion that the arguments in support of the claims of the profession are unanswerable and that nothing of any serious weight had yet been advanced against these claims by those who had set themselves in opposition to them.

[The new President, Mr. J. Stuart Syme, L.R.I.B.A., is a partner in the firm of Messrs. Brierley & Rutherford, of York.]

ASSOCIATION OF ARCHITECTS', SURVEYORS' AND TECHNICAL ASSISTANTS.

A number of members of the A.A.S.T.A. visited the works of Messrs. Siemens Bros. at Woolwich-road on Saturday afternoon, the 9th inst. Mr. Southey, architect to Messrs. Siemens Bros., conducted the party through the workshops. Before the tour commenced an aerial photograph of the works was shown to the visitors to enable them to appreciate the growth of the works since 1865. Commencing with the old workshop, the various processes of cable-making were inspected. In the more modern workshops the difference in construction was apparent, the floors all being constructed in reinforced concrete and finished with composition flooring, and the increase of window area was also a notable feature. In the latter workshops the construction of the various parts for the new automatic exchanges was found to be of great interest. The visit was concluded with tea, at which Mr. Weeble, on behalf of the A.A.S.T.A., thanked Messrs. Siemens Bros. and Mr. Southey for their courtesy in allowing and conducting the visit. Mr. Metcalfe seconded the vote of thanks and Mr. Southey replied.

THE INSTITUTE OF BUILDERS.

The forty-third Annual General Meeting of the Institute of Builders was held on Wednesday, March 30. The accounts and balance sheet for the year ended December 31, 1926, showed a very satisfactory position. The report of the Council outlined the progress that has been made with the Institute's educational policy, and referred to the increasing desire of students to present themselves for the Institute's examinations. The scheme of medal awards for the encouragement of the study of general building industry subjects had been revived for the past year. The Council acknowledged the receipt of donations to the library fund, which, together with a grant from the Institute's funds, will be expended upon the purchase of books to form the nucleus of a technical reference library for the industry. Other sections of the report dealt with the Institute's activities overseas, and the activities of the Licentiate Discussion Club.

The following officers for the year 1927–28 were elected :—

President, Mr. S. Guy Sapcote, F.I.O.B. (Birmingham).

Vice-President, Mr. R. A. Costain, F.I.O.B. (Liverpool).

Hon. Treasurer, Mr. A. J. Forsdike, F.I.O.B. (Sheffield).

The following members were elected to the Council :—Mr. G. Gee, F.I.O.B. (Derby); Mr. F. G. Hodges, F.I.O.B. (Burton-on-Trent); Mr. E. W. King, F.I.O.B. (Newport, Mon.); Mr. G. H. Parker, F.I.O.B. (London); Mr. R. L. Roberts, M.A., F.I.O.B. (London); Mr. B. C. Aldous, A.I.O.B. (London); Mr. J. H. Barker, A.I.O.B. (Hitchin); Mr. H. R. Middleton, A.I.O.B. (Yarmouth).

Mr. Sapcote, upon taking the chair, thanked the members for their expression of confidence in him, and dealt briefly with the programme before the Council and the status of the Institute in the industry.

The Council's report upon the Architects (Registration) Bill and their decisions were discussed, as was also the Institute's Benevolent Fund.

South Wales Branch.

At the annual meeting of the South Wales Branch of the Institute the following officers for the year 1927–28 were elected :—

Chairman, Mr. I. J. Chorley, F.I.O.B.
Hon. Treasurer, Mr. P. W. T. Rendell, A.I.O.B.
Hon. Auditor, Mr. W. F. Bibson, A.I.O.B.

The report outlined the activities of the branch for the past year, which included the arrangement, in conjunction with the South Wales Institute of Architects (Central Branch), of an interesting series of lectures. The Institute's medal awards to the schools for the encouragement of general building industry subjects have been augmented by the award of special prizes to students of the Cardiff, Newport and Swansea Technical Colleges, as well as prizes for studies in the building crafts. The report referred also to the work of Mr. A. E. Jenkins, F.I.O.B., who, as chairman of the branch during the past year, rendered invaluable services to the Institute and its activities in South Wales.

Visits to Works in Progress.

Through the courtesy of a number of London contractors the Institute has been able to arrange, for the benefit of the students of the Building Classes of the Acton and Chiswick Polytechnic, an interesting series of visits to works in progress. These visits have a great educational value, and are much appreciated by the staff and the students. A few instructional hours spent by students on a building site are invaluable, since examples of modern building methods and the uses of new building materials cannot readily be demonstrated in the lecture room.

The Delphi Excavations.

Further archæological discoveries are reported from Delphi, where a marble head of the Emperor Marco Avrilios, together with an important fourth-century inscription and a quantity of pottery, have been found. The inscription and pottery, it is stated, probably belong to the Treasury of the Athenians.

THE LONDON COUNTY COUNCIL

The London County Council at a recent meeting dealt in detail with certain estimates which had already been approved in bulk. The principal capital requirements submitted had reference to improvements, main drainage, and mental hospitals. The estimate of the Improvements Committee (£1,050,000) included £100,000 for the reconstruction of Waterloo Bridge and £100,000 for Lambeth Bridge. Mr. E. G. Culpin moved an amendment asking the Council to vote £100 for an inquiry into the London Building Acts and the position of district surveyors. He said the consolidation of the London Building Acts was necessary. It was difficult for builders and architects to find what was expected of them, while the Building Acts Committee itself found questions which were raised very difficult to decide. The office of district surveyor was an anachronism. It was paid by fees, and in one case a district surveyor over a term of years obtained an average yearly income of over £5,000. District surveyors should be under control of the Council and should be paid salaries.

Mr. W. Ray, while expressing sympathy with the objects of the amendment, said the time was not opportune for such an inquiry.

The Council rejected the amendment. Mr. C. A. G. Manning asked for an allocation of £500 for the promotion of legislation to prevent the London squares from being built upon. He said successive Councils had been deeply interested in the matter, and an Act was secured which protected many squares. That Act did not go far enough. The time had now come when all the squares should be protected.

Mr. Ray replied that a resolution would be placed on the next agenda of the Council asking the Government to set up an inquiry, in order to secure that information not in the possession of the Council should be obtained.

Mr. Herbert Morrison said the Council had already spent three years on inquiry, and the facts were well known. Mr. John Scurr had drafted a Bill which provided that the squares should not be built upon.

Mr. Manning declined to withdraw the amendment, which was lost on a division.

Sir Percy Simmons informed Mr. J. D. Gilbert that tenders in connection with the works on the Lambeth Bridge approach had been invited, and were due. He also said that two blocks of land, having an area of about 79,000 ft., at Kingsway and Aldwych, had been available for building for about 20 years. The Council's yearly rent roll from sites already let on the area of the improvement was about £105,000. Arrangements for letting a site for offices for the Indian Government had been completed and the Committee had other negotiations in hand.

Remains of Early London.

The committee in charge of the Museum of the Corporation of London (Guildhall Museum), have recently started a scheme for the effective survey of the ancient structural remains of early London as they are revealed by modern building operations. The Councils of the Society of Antiquaries and the Royal Institute of British Architects, together with the authorities of the British Museum and the London Museum, have all readily given their support to the project, and already the work is taking definite shape. Briefly the scheme is to record on a large-scale map of the City of London the details and measurements of all authenticated discoveries as they occur, before the requirements of modern building improvements obliterate these relics of the past. It is hoped, too, that in time it will be possible to transfer to this plan the vast amount of valuable information on this subject scattered (and often forgotten) in the various archæological publications of the last fifty years. The plan will become in time the most valuable storehouse for knowledge of the site of Roman London.

BOOK REVIEWS

Artifex; or, The Future of Craftsmanship. By John Gloag. (Kegan Paul.) 2s. 6d. nett.

In this little volume on "The Future of Craftsmanship" Mr. Gloag's sub-title is an apt one. The book is one of the "To-day and To-morrow" series. In congratulating the author we are congratulating the publishers on a welcome addition to a list of about three dozen pamphlets with similarly interesting titles, such as Daedalus, Narcissus, Thrasymachus, &c. The description "pamphlets" is the publisher's own; but are they correct in their suggestion that it is "a revival of a form of literature which has been in disuse for 200 years"? Surely John Ruskin has not been dead so long as all that, and did he not append to his pamphlets such titles as "Deucalion," "Proserpina," "Ariadne Florentina," &c., &c.—not to mention that remarkable and long series of letters (or pamphlets) to working-men, "Fors Clavigera," whose title alone was anathema to many? But granted Ruskin's was not the age of the great pamphleteers, perhaps an Addison or a Steele may be reincarnated in our own day.

"Artifex" is a virile sermon on morality in the arts and crafts—where we were, where we are, and where we may be (or not be) in the great to-morrow. We do not commend the book to any reader, be he master or mechanician in craft-production, who may wish to avoid the unpleasantness of home truths. A book that can afford a few exciting hours to a, perhaps, jaded reviewer may well afford many reflective hours and a wholesome stimulus to any serious student of the arts and crafts. It would be easy enough to quote a dozen and, indeed, we have marked more than a dozen of the author's pregnant thoughts; but one or two will suffice. He tells us how in mediæval times "Craftsmanship under the care of the Church and Guilds marches from triumph to triumph. The buildings of the 12th, 13th, and 14th centuries remain to remind us of a time when there were so many able craftsmen and the knowledge of building and working wood, stone and metal, of carving and painting, was so widespread, so commonplace, that no great names stand out to be identified with this building or that. There was a great common art." And so he carries us through the advances, the checks and the retrogressions from the free expression of art through the people, by the people, and for the people down to the decadent days of machine-craft in the 19th century. The author is constructive in his theories and sufficiently optimistic to see light ahead. It is all a matter of education on sound lines and in right directions. "The education of craftsmen must be directed to make hand-craft and machine-craft compatible." . . . "Unless the great mass of people is taught how to think, and, consequently, how to criticise, technical education will be handicapped, for although it may improve craftsmanship, it cannot create the demand for well-made things that must sustain good craftsmanship." In short, the consumer as well as the producer must be educated, for unless the great mass of people is taught how to think there can be no healthy demand for "good workmanship in the commonplace things of everyday life."

Design and Construction of Formwork for Concrete Structures. By A. E. WYNN, B.Sc., A.M.Inst.C.E. London: Concrete Publications, Ltd. Price 20s. net.

We give elsewhere in this issue some useful notes on "Formwork for Beam and Girder Floors," extracted from this volume, the publication of which marks a definite step in modern construction in that for the first time it gives in one volume a complete treatise on the design and erection of shuttering for every type of construction. This is the only book printed in the English language dealing exhaustively with the subject, and it is fortunate that an engineer of such wide experience, both at home and abroad, of all kinds of constructional work should have written it.

The volume comprises 320 pages, and includes no less than 219 drawings and photographs of shuttering for different purposes. A feature of the book is the series of tables from which may be seen at a glance the sizes of timber necessary for different purposes. An idea of the simple manner in which this is set out will be gathered from Table 1, reproduced on this page, which shows the maximum span of floor sheathing for various thicknesses of slab, from which one may see at a glance the size of timber necessary for slabs of different thicknesses across varying spans.

This treatment is carried out in connection with wall forms for various heights of wall; column forms for columns from 6 ft. to 30 ft. in height; safe loads on posts from 4 ft. to 20 ft.; spacing of floor joists for various spans and thicknesses of slab; maximum concentrated loads carried by ledgers and wales for various spans and spacing of loads; spacing of column yokes for various sizes and heights of column; maximum spacing of wales and wall ties for various sizes of studs and heights of wall, &c.

The first chapter is devoted to a discussion of form building in general, after which the theory of formwork design is thoroughly dealt with in simple language. Chapter V gives designs for 19 purposes, including simple slabs for varying spans; beam and girder construction; flat slab construction; columns; walls; stairs, &c.; while the following chapters deal in detail with the design of shuttering for different purposes. In each case clearly drawn diagrams are given, together with photographs where they are necessary to illustrate the design.

A valuable feature of each design is data for costing, from which the cost of the shuttering for any purpose may be readily calculated.

The book may be thoroughly recommended to engineers and builders interested in reinforced concrete construction and the casing of steelwork, and should be particularly valuable to foremen engaged in the carrying out of such work. The designs and data included in the book rescue formwork from haphazard guesswork; from the information given the exact scantlings necessary for every purpose can be ascertained, with a consequent saving in material and the elimination of the risk of collapse through faulty design or erection.

The Arithmetic of Building. By CHAS. G. DOBSON. "Lockwood's Trade Manuals." (London: Crosby Lockwood & Son.)

This little work of about 90 pp. deals with the calculations which have to be made in a builders' office relating to the work done by the excavator, bricklayer, mason, carpenter, slater, tiler, &c., in ordinary building work. The work involves no special difficulty; in fact, seldom goes beyond the "first four simple rules" of arithmetic, but there are certain peculiarities of treatment that have grown with the trade treatment of the subject that beginners need to learn, and the author's little work will do this. Duodecimal calculations are scarcely known outside the building trades, and it is difficult to explain why this method has been retained so long. For instance, take the example given on page 5, where the area is required of a rectangle (?) 6 ft. 9 in. by 4 in., and this is given as :—

$$6'\,9'' \times 4 \text{ in.} = 6'\,9'' \times \tfrac{1}{3}' = 2'\,3'' \text{ sup.}$$

By duodecimals the process would be—

6 ft. 9 in.
4
---
2 ft. 3 ft. 0 in.

and this result is the same as above.

By ordinary arithmetic one would proceed thus :—

$$(6 \text{ ft. } 9 \text{ in.}) \times (4 \text{ in.}) = (6\tfrac{3}{4} \text{ ft.} \times \tfrac{1}{3} \text{ ft.})$$
$$= \frac{27}{4} \times \frac{1}{3} = \frac{9}{4} = 2\tfrac{1}{4} \text{ sq. ft.}$$

In the first method one is multiplying inches by feet (!), whereas strictly it is impossible to mix different units together without obtaining anomalies. One square (or super) foot contains obviously 144 square (or super) inches, yet the result is given (accepted and understood) as 3 in. super, whereas it is 36 sq. inches!—a very different matter. The author writes (feet × inches gives "ins. sup." in area) and so explains this mix-up of units. There are many excellent suggestions and explanations given by the author, which will assist the student of "Building calculations," but it is questionable if there is any gain in departing from the usual methods of arithmetic.

British Waterworks Year Book and Directory, with Statistical Tables, 1926. Published by the British Waterworks Association. General Editor, G. P. WARNER TERRY, Secretary to the Association, 173, Rosebery-avenue, London, E.C.1. First issue, 1926. £1 1s.

The British Waterworks Association have issued a Waterworks Year Book and Directory with statistical tables, which contains a mass of information relating to waterworks undertakings in Great Britain and a few of the British waterworks beyond seas. The book is in three parts—(I) directory, (II) statistical tables, and (III) general information. The directory part gives in alphabetical order the names of undertakings with particulars as to date of establishment, names of chief officials, special Acts and limits of supply, the sources of supply and the character of the water. Domestic charges, charges for metered and other supplies, and miscellaneous charges, including bulk supplies, and public water rate, if any, are also given. The statistical tables furnish particulars (in Table I) as to sources of supply, extent of catchment area, storage or subsidence reservoirs, wells and springs, and engine power. The third table contains further details as to supply from all sources, whether by gravitation, pumping or otherwise, including bulk supplies. The miscellaneous information contains lists of the Ministry of Health Advisory Committee on Water Supplies, the Executive Committee and the Standing Committee on Water Regulations of the British Waterworks Association, the Council of the Institution of Water Engineers and of the Water Companies Association; the Members of the Joint Industrial Council for the Waterworks Undertakings Industry, with the District Councils and a number of miscellaneous societies concerned with or interested in water supply. The compilation of so much information and its subsequent arrangement represents a great deal of work, and the B.W.A. and Mr. Warner Terry deserve the fullest praise for the lucid manner in which they have carried out their task. The result is a handbook which will be of incalculable assistance to water engineers, surveyors and all connected with waterworks undertakings.

Live Load = 75 lbs. to sq. ft.

$M = \frac{wl^2}{10}$

$l = 10.25\sqrt[4]{\frac{d^2}{w}}$

$D = \frac{1}{8}''$

TABLE. I.

MAXIMUM SPAN OF FLOOR SHEATHING FOR VARIOUS THICKNESSES OF SLAB

Thickness of Slab	Thickness of Sheathing 1"	1¼"	1½"	2"
3"	32½ ins.	39½ ins.	46 ins.	59 ins.
4"	31½	38	45	57½
5"	31	37½	44	56
6"	30	36½	43	55
7"	29½	36	42	54
8"	29	35	41½	53
9"	28½	34½	41	52
10"	28	34	40	50½
11"	27½	33½	39½	50½
12"	27	33	39	50

FROM "DESIGN AND CONSTRUCTION OF FORMWORK FOR CONCRETE STRUCTURES," BY MR. A. E. WYNN. (*See page* 658.)

THE LONDON BUILDING ACTS AND THEIR APPLICATION.—XV

By H. V. MILNES EMERSON, A.R.I.B.A.

ESCAPE FROM FIRE (*continued*).

The following are the general requirements of the L.C.C. in regard to applications in respect of the means of escape in case of fire to be provided in accordance with the provisions of the Acts. These regulations, however, are not to be taken as binding upon the Council, but only as a general guide, as each case is considered and dealt with upon its merits.

Applications.

Applications for the Council's certificate in respect of the means of escape from new buildings and applications with proposals to meet the Council's requirements in respect of the means of escape from existing buildings, or for exemptions from any of the provisions of the Acts, should state:—

(*a*) The Act and section of the Act under which application is made.

(*b*) The number of persons for whom sleeping accommodation is provided and the number of persons occupying or employed on, or intended to be occupied or employed on, the various floors of the premises, specifying approximately the number of males and of females.

(*c*) The trade (if any) carried on, or to be carried on, on each floor, with particulars of machinery, &c.

(*d*) In the case of existing buildings, the date of erection of the building.

(*e*) The name and address of the owner and the occupier (if any).

(*f*) Particulars of the occupation or proposed occupation of the building. If in different occupations, particulars with regard to each part should be furnished.

Plans Required.

Applications should be accompanied by all necessary plans, sections and elevations, drawn to an $\frac{1}{8}$ in. or $\frac{1}{4}$ in. scale ($\frac{1}{8}$ in. scale preferred), and by a block plan to a small scale, showing the premises and the surrounding buildings and thoroughfares, such block plan to have the north point indicated. These plans should show (as far as may be necessary for the purpose of the application), the means of escape proposed to be provided.

Means of Escape.

At least one enclosed and protected staircase and exit is required, and in addition an alternative means of escape from each floor by one of the following means:—

(*a*) Another enclosed and protected staircase and exit in the same building.

(*b*) A suitable staircase in another block, to which access is given by door openings in the party or division walls, or by external communication.

(*c*) External gangways or balconies, affording access to adjoining or adjacent buildings.

(*d*) An external iron staircase.

(*e*) Any other suitable arrangement which will, in the opinion of the Council, secure the desired object, having regard to the circumstances of any particular case. No arrangement which is not permanently fixed in position, or which requires manipulation in part or in whole in order that it may be used in case of emergency, can be accepted.

Where two or more means of escape from any floor are provided, they should be placed as far as is reasonably practicable from each other so as to be approachable from any part of the floor area independently of any one fire risk on that floor.

(*f*) In all cases where considered necessary by the Council, some means of escape from the roof of the building to the roof of the adjoining premises should be provided.

(*g*) In small premises and in some cases where it is possible to provide a staircase in a central position, one enclosed staircase may be accepted provided the premises are not used for the storage or manufacture of inflammable or explosive materials.

Maintenance.—Means of escape to be kept in good repair, &c.

Details of Construction.

(1) Enclosed and Protected Staircases.

A.—Internal incombustible staircases:—

(*a*) The staircases including landings, lobbies, and passages from one flight to another, should be enclosed by walls, not less than 9 in. thick, the outer edge of the steps and landings being properly supported.

(*b*) The staircases should be ceiled with iron and concrete where they are not carried up above the roof or where they are carried up above the roof and are liable to attack by fire from an adjoining structure.

(*c*) The staircases, including the flooring in the lobbies, approach, passageways, &c., should be constructed of incombustible materials with solid square or spandril steps, which should be supported at both ends on brickwork. The steps and landings should not be less than 6 in. thick.

(*d*) Spandril steps, where used, should be of the following thickness:—

(i) For staircases 3 ft. 6 in. wide, not less than 3 in. thick in the smallest part.

(ii) For staircases 4 ft. 6 in. wide, not less than $4\frac{1}{2}$ in. thick in the smallest part.

B.—Internal fire-resisting staircases.

(*a*) The staircases, including the treads, strings, carriages, landings, joists and floors, should be constructed of oak, teak, jarrah, karri, or other hard timber of not less than $1\frac{3}{4}$ in. finished thickness (no fir or pine must be used), and the enclosure to the staircase should be a solid partition of incombustible or fire-resisting material at least 3 in. thick, carried up through the thickness of the floors.

(*b*) The ceilings and soffits of the staircases and landings, if any, should be of plaster or cement.

(*c*) A suitable balustrade should be provided where necessary to the outer strings of the staircases.

External Iron Staircases.

(*a*) Staircases, including the strings, bearers, and supports, should be of iron, and constructed throughout upon dead bearings, to the satisfaction of the District Surveyor.

(*b*) The steps and landings should be constructed of solid or perforated iron plates (if perforated plates be used no perforation should exceed $\frac{3}{4}$ in. across each way).

(*c*) The risers should be of iron, either solid or of a close pattern.

(*d*) Where an iron staircase is in general use, the treads and landings should be finished with a surface of approved non-slippery material as distinguished from perforated iron or chequered iron plates.

(*e*) All windows and similar openings by or near any such staircase should be glazed with fire-resisting glass, and where necessary the sashes and frames should be fixed.

(*f*) A balustrade of a close pattern at a suitable height should be provided on each side of the flights and around the landings. If balusters are used, they should be not more than 6 in. apart.

(*g*) The staircases should deliver into the outer air at the ground level, into a public way or thoroughfare, or some large open space.

Generally as to Staircases.

(*a*) Internal staircases should, where practicable, be placed next to an outer wall, and be so arranged that persons enter them from any floor level in the direction of the descent.

(*b*) Internal staircases should be properly lighted and ventilated by windows, or, in exceptional cases, by other effective means.

(*c*) The treads of the staircases should be not less than 10 in. wide, and clear of nosings, and the risers not more than $7\frac{1}{2}$ in. high.

(*d*) Staircases should be provided with handrails fixed on both sides thereof, and continued around the landings and chased into the end of newel walls where these occur.

(*e*) Where the doorways or staircases may be used as means of escape by not more than 200 persons, they should be not less than 3 ft. 6 in. wide.

(*f*) Where the doorways or staircases may be used as means of escape by more than 200 persons or by more than 100 persons on any one floor they should not be less than 4 ft. 6 in. wide.

(*g*) The doorways for access to, and exit from, the staircases should in all cases be of the width in the clear mentioned above when the doors are open.

(*h*) All doorways leading to staircases should, where necessary, be recessed. The recesses should be constructed throughout of fire-resisting materials, and be fitted with doors of fire-resisting materials (oak, teak, &c., not less than $1\frac{3}{4}$ in. finished thickness) in two folds hung so as to open in the direction of the exit or to swing both ways clear of the steps, landings, passageways and footways. Such doors must be fitted with springs, weights or other approved appliances to close them after use. The frames of the doors shall be bedded solid to the walls or partitions.

(*i*) Staircases should be arranged in straight flights without winders; each flight should consist of not more than 15 steps; landings should be provided at top and bottom of each flight; the steps and landings should be of the full width of the staircases.

(*j*) Landing space not less than 2 ft. 6 in. wide should be provided between the steps of the flights and the escape doorways leading to and from the staircases.

(*k*) All supports to internal fire-resisting staircases and their enclosures should be of fire-resisting materials, and all iron work supporting internal staircases and their enclosures should be protected by plastering or other incombustible or non-conducting external coating not less than 2 in. in thickness.

(*l*) Doors at the head of staircases affording access to the roof should be glazed in the upper panels with ordinary glass.

External Iron Gangways and Balconies.

(*a*) These gangways and balconies should be supported on dead bearings and be provided with solid floors of incombustible materials; if perforated iron flooring is used, perforations are not to exceed $\frac{3}{4}$ in.

(*b*) A suitable balustrade, not less than 3 ft. 6 in. high, should be provided to these gangways and balconies.

Enclosure and Position of Lifts.

In cases where a lift will in the opinion of the Council, endanger the means of escape, the following requirements should be observed:—

(*a*) Lifts, excepting passenger lifts in staircase wells, should not be placed near escape staircases.

(*b*) In buildings with fire-resisting floors, lifts should be enclosed with incombustible materials and fire-resisting doors. When the shaft of the lift is carried up to the roof it should be continued through the roof and, if covered, thin glass should be used, protected on the outside with strong wire guards.

(*c*) In other buildings where there are large floors undivided by partitions, fixtures, &c., lifts, if placed as far as practicable from the staircases, exits, &c., may be enclosed with fire-resisting materials to a height of 4 ft. above each floor level and above this with stout wire-mesh guard.

Buildings Used for the Storage of Inflammable Liquid.

(*a*) Rooms in which inflammable liquid is stored should be separated from other parts of the building by brick walls and fire-resisting floors and ceilings.

(*b*) Doorways for access to such rooms should be fitted with self-closing, fire-resisting or iron doors.

(*c*) Adequate ventilation should be provided.

(*d*) Living rooms, workshops or workrooms constructed over, or communicating directly with, any part of a building used for the storage of inflammable liquid, should be provided with exit doorways giving access to some safe position, as far as practicable from the storage, and with doors hung to open in the direction of exit with only such fastenings as can be easily and immediately opened from the inside.

ARCHITECTS' & BUILDERS' INQUIRY BUREAU

We are glad to give questions and answers, but cannot accept responsibility for contributed replies, especially on legal matters.

May we appeal to our correspondents to submit their queries on paper of a size easily filed, and written as legibly as possible, or, better still, in typewriting!—Ed.

Rain-Excluding Device.

Sir,—Can you tell me of any patent device on the market to prevent rain from coming in through casement windows when closed?

J. M.

Penalty Clause.

[Reply to "Speed-up," April 15.]

Sir,—Any order for extra work, given by an employer or his architect, impliedly extends the time for completion of the contract work; unless the contract specially stipulates that time is an essential factor and no extension is to be allowed for extra works.

Now, although an architect has no implied power to order extras or vary the work on his own authority, yet most contracts nowadays give him express power to do so; and in using this power he is strictly limited by the terms of the contract. Provided he acts within the scope of his authority in ordering variations involving extra work on a contract which is to be completed by a certain day, under a penalty for liquidated damages, and completion is necessarily delayed thereby, then the penalty for delay is not recoverable. [See Dodd *v.* Churton (1897), 1 Q.B. 562], and Creswell on Building Contracts.

Law.

"Cement Stucco."

[Reply to "A. B. C.," March 25]

Sir,—For at least two generations in the United States, stucco has been a term applied to all outdoor rough cast work on the walls of buildings. We have stucco made with Portland cement, that is known as "cement-stucco," as distinguished from lime stucco and stucco made with magnesia. Your correspondent states that in Aberdeen the word stucco is used exclusively for plaster-of-paris. This was, many years ago, the only stucco that was known, but custom has now decreed, in America at least, that all plastering work, except ornamental plastering, upon the exterior of houses is stucco.

Ernest McCullough,
Editor of the *Building Age and National Builder*.

New York.

Multi-coloured Rustic Slates.

[Reply to "Nervous," April 8.]

Sir,—As a general rule, consignments of slates of the above description vary so much in thickness that it is inadvisable to lay to a pitch flatter than the minimum in ordinary flat tile construction. It is rarely possible to inspect the consignment before the design of the roof is settled, so that it is wise to legislate for a minimum pitch of 40 deg., although the slates may turn out to be suitable for a slightly flatter pitch than this. The question of the exposed, or otherwise, position of the site must also influence the pitch to which these slates may safely be used.

Lap.

Returning Bills of Quantities.

[Reply to "Irregular," April 8.]

Sir,—I quite agree that the procedure described by your correspondent is unusual, although its fairness and legality seem to me to be above question. If all competing firms are called upon to send in their priced schedules with their tenders a certain amount of additional burdensome clerical work is entailed, but two nuisances are checkmated, viz., the "sporting" competitor, who sends in a spot figure which he piously hopes to be able to reconcile at leisure to an economic schedule; and the "courtesy" competitor who, rather than risk offending by refusing to tender, rings up his fellow-tradesmen and takes care to beat their figure respectably, with no hard work entailed. The first class are the men who are more often than not let down by their own guess and seek to make good by scamped work and inconsistent extras, to the discredit of their trade, and the second give a false colour to what may appear to be close tendering. Your correspondent may certainly detach the tender form and retain his schedule, but I should imagine his tender would be disqualified and I really do not see what he will gain by the procedure.

Above Board.

Dampcourse.

[Reply to "Thomas," April 15.]

Sir,—I have recently inspected a number of old properties in a granite district, and have been amazed at the amount of damp appearing through the absence of a dampcourse. It is obvious that practically the whole of the absorption is by way of the mortar joints, and I consider that this indicates that however perfect the concrete blocks may be in a house of the construction described by your correspondent, the risk of porous joints is too great to render the omission of a dampcourse even a fair risk. The cost is, after all, so little in proportion to the cost of a house, that it is really not worth while considering.

Safety First.

Oak Sills.

[Reply to "Question," April 15.]

Sir,—I always specify oak sills, where the woodwork is stained only, but to be given a coat of varnish after staining. This is a necessary and adequate surface protection, and costing very little.

Sunburn.

Penalty Clause.

[Reply to "Speed-up," April 15.]

Sir,—A variation will affect the time limit only if it involves additional work over and above that considered when the time limit was assessed, or if it brings about difficulties which could not be foreseen by the contractor in tendering. Each case of this sort would have to be judged on its merits. As regards a penalty, I have myself known, since the war, a penalty enforced and admitted, and also a bonus paid, both cases being jobs in which variations had been made.

Judgment.

THE WEEK IN PARLIAMENT

Westminster, *Wednesday.*

Parliament adjourned on Thursday, April 14, to Tuesday, April 26.

The Mercantile Marine Memorial.

A Select Committee of the House of Commons have considered the Bill which confers powers on the Imperial War Graves Commission to erect a memorial on Tower Hill to the officers and men of the Mercantile Marine who lost their lives in the war. Mr. Gosling presided over the Committee.

Mr. H. F. Bidder stated that the Memorial was designed by Sir Edwin Lutyens, and would be erected in a part of the gardens of Tower Hill. Those gardens had been held in trust since 1797, and there were various parties interested therein. The frontages and even the underground railway, whose tunnel ran under the gardens, were concerned, but all interests had been considered and general agreement obtained.

The Bill was ordered to be reported to the House, and has since been read the third time.

Duty on Translucent Pottery.

Mr. Churchill, the Chancellor of the Exchequer, in his Budget, stated that the Safeguarding of Industry procedure in the present year had evolved a duty of 28s. per cwt. for five years on table ware of translucent and vitrified pottery. He made that proposal in accordance with the recommendation of the Majority Report of a committee duly appointed. The duty would become chargeable on April 19, and it was estimated to bring in revenue to the extent of £150,000 this year, rising to £200,000 in full year. That yield, although modest, ought not to be disdained, having regard to the financial situation.

Price of Houses.

Mr. Chamberlain informed Mr. Short that the average prices of houses in contracts let by local authorities, excluding the cost of land and development were, in May, 1926, £436 in respect of non-parlour houses, and £495 for parlour houses; the corresponding figures in January, 1927, were £427 and £492.

The Royal Chapel at Windsor.

Lieut.-Commander Kenworthy asked the First Commissioner of Works if he would state who was responsible for the heraldic advice given when the Royal Chapel at Windsor was restored; if he was aware that the yale which figured in the heraldic decorations was now represented with both its horns sloping the same way, whereas the ancient design was for one horn to point forward and one horn to point backwards; and whether, in the interests of heraldic accuracy, he would take further advice with a view to the necessary alterations being made.

Captain King, who replied, said that the Chapel was under the jurisdiction of the Dean of Windsor, and the First Commissioner was, therefore, unable to take any action in the matter.

ENGLISH COUNTRYSIDE*

"The soul of England must not be sought in the city, but in the countryside; the city is the working-place of the few, the many yearn for a cottage and a plot of ground where the wind blows pure and the heavens are not masked by a pall of gloom." Mr. Pulbrook is not the first writer who has propounded this thesis; and possibly hundreds have said it more grandiloquently, if not more forcibly. William Morris said many significant things about the lure of the beloved Homeland, and our author quotes him: "This is a little land, sirs, too much shut up within the narrow seas, as it seems, to have much space for swelling and hugeness; there are no great wastes overwhelming in their dreariness, no great solitudes of forests, no terrible untrodden mountain walls; all is measured, mingled, varied, . . . it is neither prison nor palace, but a decent home." And surely this sums up the reasons that the exile will haltingly give for his intense longing, aye, and working, for an ultimate return to that Homeland which has "as many facets as a well-cut diamond . . . flashing all the colours of the rainbow in many ways and at many angles, so that it is impossible to say which effect is most beautiful."

Are we all, each and severally, doing our bit, little or big, to keep this priceless heritage unsullied? A few weeks ago our consciences were stirred at the suggestion that Borrowdale's road was to be made practicable for the supermotorist; and we may ask: Is a tar-mac motor track a fair exchange for a glacier-worn moraine of a remote geological age? The author has much to say about "By-roads and Trackways" (Chapter XI), from prehistoric cattle-ways to Roman roads and pilgrim-ways of mediæval times; and he appears to know all about road lore. In looking at illustration number 77, "A Byway in the Quantocks at Triscombe," we try to imagine it brought up-to-date for the motorist!

The green-covered book, with its 136 pages of legible type and 126 delightful illustrations, deals with the Homeland from Cumberland to Cornwall and from Lincolnshire and the Norfolk Broads to the Welsh Marches, its country stiles, wayside and market crosses, its meres, running waters, ancient fords and bridges, water-mills, windmills, cottages, barns, country inns, its shepherds and their flocks. The author reminds us of the intimate scenes which gripped us in our youth—and youth has no age—in such a fashion that they remain with us as precious memories whilst we forget the novels and plays we read and saw last year. If we have said too little about the book it is because it is so compelling in suggestion.

* *The English Countryside.* By Ernest E. Pulbrook. Second Edition. B. T. Batsford, Ltd. Large octavo, cloth gilt. 12s. net.

THE BUILDING TRADE

UNEMPLOYMENT INSURANCE.—I

The Report of the Committee appointed under the chairmanship of Lord Blanesburgh "to consider, in the light of experience gained in the working of the Unemployment Scheme, what changes in the Scheme, if any, ought to be made" is an extremely important document, and the recommendations of the Committee acquire increased weight from the fact that the Committee were unanimous in their findings.

From a sentence in the Introduction to the Report it is at once made apparent that the Committee were alive to the difficulties involved: "From whatever standpoint it be regarded, the whole subject bristles with difficulties and demands careful consideration. It raises problems which affect in greater or less degree the morale of the community as a whole, as well as the well-being, peace of mind and self respect of many millions of workers."

From the Historical Review contained in the Report it is interesting to see that the genesis of unemployment insurance is to be found in the action of the Friendly Societies and Trade Unions. In 1905 the former Societies, which had adopted a scheme, represented 75,000 members; but in 1904 Trade Unions, with a membership of 950,000, were paying unemployment insurance, and although in some cases it was but represented by travelling allowances to members seeking work at a distance, in other cases the benefit was substantial, varying from £1 to 10s.

During the years 1896-1905 these eighty-one Trade Unions had paid sums amounting to nearly £3,750,000, and it is interesting to find that the Trade Unions adopted a principle which was closely followed in the first Unemployment Insurance Act, 1911, viz., a maximum number of weeks for which benefit might be allowed either continuously or within a given year, and the imposition of a "waiting period" before it commenced, during which the unemployed was expected to live on his own resources. These schemes also allowed nothing for the dependants of married workers, and in this respect also the Act followed it.

The Report contains the following observations upon the first Act of 1911: "The benefit was not based on need but on contract, and it was too small in amount to offer any inducement to idleness. The Act of 1911 in this avoided pitfalls of a more generous scheme, but it would have been quite unequal to the solution of the unemployment problem in its more recent developments. Its degree of adequacy, however, when unemployment was low is remarkable."

The war period disturbs statistics; in the first place, unemployment was negligible, and the "Out-of-Work Donation" covered much of the ground that the Act, as enlarged by that of 1916, covered.

The Act of 1919 increased the benefits, but yet until the end of 1920 the fund was more than solvent, showing a favourable balance of £21,200,000; but then unemployment began rapidly to increase. We must quote one passage here from the Report, as it agrees with the opinion we expressed many years ago in these columns, that unexampled unemployment, a direct result of the war, should have been dealt with by special means and not have been dealt with under the Acts which were based on an actuarial basis: "The existence of this balance, the result of very low rates of contribution, probably had a great deal to do with the course of the later developments of unemployed insurance in this country. It is not improbable that, but for this balance, the vast increase in unemployment which commenced soon afterwards would have been dealt with as an abnormal phenomenon, and in some other way than by extensions amounting almost to a transformation of the original scheme of insurance."

We cannot linger over this very interesting historical portion of the Report, but it is interesting to note that when the benefits were increased by the Act of 1920, the actuarial percentage of unemployment was placed lower than what the actuary in 1911 has assumed to be the percentage, 8.6; but the economic position deteriorated so rapidly that in 1921 it was 14 per cent. in the insured industries. Dependants received benefit first under one of the Acts passed in 1921.

The Report then traces the history of the extended benefit known as "uncovenanted benefit," which undoubtedly accounted for the deficit of £15,300,000 at the end of the insurance year 1922-23, which, although it had fallen to £7,100,000 by May, 1926, as a result of the General Strike and Coal Dispute, in December last amounted to £21,000,000. We can conclude this brief notice of the historical part of the Report with the observation of the Committee in connection with schemes now prevalent in Europe: "In point of fact we believe there is no Scheme in existence comparable with the British Scheme."

Alleged Abuses.

The Committee paid special attention to the alleged abuses which had been made of the system, and their finding on this was: "It is true that a certain number of the 11,750,000 of insured persons have received relief to which they had no claim. But it is equally true that these cases are relatively few, and that result, we believe, is due to the vigilance with which the Ministry, while dealing fairly with the genuine claimant, guards against abuse."

In 1925 fraud was suspected in 11,413 cases, prosecutions followed in 1,964, convictions were obtained in 1,844, and in 468 terms of imprisonment were imposed.

The Principles of Unemployed Insurance.

The Committee commence this section of their Report with the very pertinent observation that it would be unfortunate if preoccupation with the task of ascertaining how best unemployment can be insured against were to weaken any concerted effort to get rid of unemployment itself, and it pays a tribute to the Employment Exchanges and the Employers' and Workers' Associations.

The Report points out that specialisation is the root cause of much unemployment, and in paragraph 47 will be found some detailed suggestions as to how unemployment might be diminished, which we cannot set out here, as the Committee considered them outside the terms of their reference, and they only express the views of some of the members, but we may note one or two paragraphs. For instance, some of the members were impressed with the success achieved by the specialised Employment Exchange at Tavistock-street for those engaged in the building trade, and considered similar Exchanges should be set up for other trades; whilst others advocated a system of training for the unemployed for other occupations on the lines of the experimental work in connection with the training of women for domestic service.

It appears from the Report that there was agreement amongst all the witnesses, and in the evidence collected, that an unemployment scheme must now be regarded as a permanent feature in the code of social legislation, a view endorsed by the Committee; it was also agreed that the scheme must be compulsory and that it should at least cover all the occupations at present included in it; but there was a sharp cleavage of opinion among the witnesses as to whether it should be contributory in the present sense like the Health Insurance and the Old Age and Widows' and Orphans' Pensions scheme. The Trade Union Congress contended that "Industry should be relieved of the burden of Unemployment Insurance, and that both on economic grounds and grounds of equity the charge involved in the maintenance of the unemployed should fall upon the general body of taxpayers." The National Confederation of Employers' Organisations contended that "the contributory principle is an essential feature of any scheme worthy of support." The Committee considered that this formulation of a non-contributory scheme would be outside the terms of reference, as the contributory principle is the essence of the existing system, and if they had been so attracted by a non-contributory scheme their only course would have been to have advocated the abandonment of the present scheme altogether, and not, as within the terms of reference, to consider changes within that scheme.

The Report states that the Trade Union Congress representatives, however, frankly expressed an admission that in existing circumstances a non-contributory scheme could not be secured, and assisted the Committee in considering how the present scheme could be improved.

The Committee point out that the two schools of thought are not limited to those who advocate a contributory scheme and those who do not, for there is besides a further fundamental line of cleavage amongst the supporters of the non-contributory principle; one school would have a scheme universal and non-contributory, but subject to conditions of benefit more stringent than those which can fairly be prescribed under a contributory scheme; but the other school would relax existing conditions of benefit and throw the duty of finding employment primarily upon the State. This latter scheme appears to have been entirely ruled out by the Committee as being contrary to the principle upon which unemployment insurance is founded and to amount to an out-of-work donation. But even if the principle of contribution is admitted, as the Report points out, there is a wide divergence of opinion on the administration of the scheme as to benefit. As to this, see the observations of the Committee at page 30 of the Report. We cannot enter into this question in detail, but can only give the principles laid down by the Committee for a contributory scheme; but before doing so we should like to make one observation on the value of contributory schemes. In an earlier part of the Report (page 12) it is stated in connection with the original institution of unemployment insurance by the Friendly Societies that "the experience of Friendly Societies showed that the vigilance of contributors was an effective check upon the malpractices of dishonest applicants for benefit." That is an important argument against non-contributory schemes, and the Trade Unions, in administering their sickness funds, we feel certain would admit this; the interest of contributors is a safeguard against the exploitation of public funds, in which no one receiving benefit has any interest and which becomes regarded as fair game for all.

(To be continued.)

Bricklaying Record.

William Mignes, of Wiskersley, near Rotherham, a foreman bricklayer, employed by a Sheffield firm, has established a world record it is stated by laying 1,121 bricks in an hour. The previous record was 879 laid by John Wood, of Scarborough. The bricks used by Mignes were old, and were a pound heavier and a quarter of an inch thicker than the ordinary new brick. He kept six labourers working at top speed.

FORMWORK FOR BEAM & GIRDER FLOORS

THE following notes are from Mr. A. E. Wynn's book on "Design and Construction of Formwork for Concrete Structures," which is reviewed on p. 654 of this number:—

In beam and girder floor construction the unit method is always used—that is, the slab panels, and the beam and girder sides and bottoms are built up in advance to the correct size ready for erection, and often beam and girder boxes are built up complete. Timber sizes for the different parts will be practically the same for all jobs, except that the joist size may vary somewhat with the span. Before deciding on the joist to use, comparison for economy in material should be made between two or three different sizes. The standard sizes used for all ordinary buildings are as follows:—

For slab panels, 1in. by 6in. dressed to ¾in. by 5½in., tongued and grooved.
For joists, 2in. by 6in., dressed or rough.
For beam ledgers, 1in. or 1½in. by 4in. or 6in. dressed to ¾in. or 1½in.
For cleats or battens, 1in., 1½in., or 2in. by 4in. dressed.
For beam and girder bottoms, 2in. plank dressed four sides.
For beam and girder sides, 1in. by 6in. dressed if only used once, and 1½in. by 6in. dressed if used more than once.
For posts 3in. or 4in. by 4in., dressed or rough.

In choosing between dressed and rough timber, faces coming in contact with the concrete should always be dressed, and it is customary to order material for slab sheathing, joists, beam sides and bottoms, to be dressed four sides. Beam bottoms may be dressed on one side only if thereby a single plank, or two planks together, will give just the required width of beam. Joists can be rough, but are harder to handle, and the ends will have to be sized to an even depth. Posts are generally rough, and are stronger than when dressed; but if they can be used elsewhere, as for studs, they should be dressed. If there is a basement wall to build, the timber can be used again in the floors, and should be ordered with that in mind; that is, it may be cheaper to use 3in. by 4in. or 2in. by 6in. studs in the wall and re-use them as posts or joists in the floor rather than order 2in. by 4in. studs and have no use for them afterwards.

The average size of a slab panel between beams and girders will be about 5ft. by 18ft. This can be built in one, two, or four sections, the size depending mainly on the facilities for handling from floor to floor. With a hoisting engine on the job one panel would be the most economical, but if they are to be handled by hand two or four panels per bay would be better. The panel will rest on the top of the beam and girder sides, and should be ½in. to 1in. less in width and length than the clear dimensions between the concrete. They will thus set only partly on the sides, allowing ¼in. to ½in. in clearance all around for "give" in the top of the sides—they will always give slightly under the pressure of the concrete—and so prevent the panel binding in the concrete, and hence being difficult or impossible to strip. The edges all around should be bevelled to 45 degrees.

The boards are nailed together with 1in. by 4in. battens, spaced the same distance apart as the joists will be, and so that they will be about midway between joists. The battens must be about 2in. shorter than the width of the panel. As panels are liable to swell if left long exposed to rain, to prevent buckling an end board is often left off until the last minute; or if two panels are placed side by side a narrow strip is left between them, afterwards filled in or covered with a strip of tin or heavy paper.

Another method of construction is to nail the boards direct to the joists, using them as battens. This will save material and labour, but it makes the panels heavier to handle, so should only be used when there is sufficient equipment to handle them. Each end board is nailed on lightly for easy stripping, since if they stick they will remain in place while the rest of the panel can be removed. Sometimes the length of the panel is made board-width, short each end, and these boards nailed on lightly to a joist placed a board-width away from the girder, for the same purpose of easy stripping. One of the end boards is left off until last to allow for swelling and to provide an opening for cleaning out the forms. If the panels are to be used only once, unless it is desired to make them up in advance, loose boards can be used without battens.

The length of the joists will be the clear distance between beams less twice the beam side thickness less ¼in. The ends should be bevelled inwards at the bottom about ¼in., so that they can be easily stripped without binding. If rough joists are used the ends must be sized to an even depth to give a level slab. When they are nailed direct to the sheathing the length and bevel will be the same. The width of the plank for the beam and girder bottoms should preferably be the same as that of the beam so that cleats will be unnecessary; but, as the cost increases with the width, above about 10in. wide it is cheaper to use two planks nailed together with 1in. by 4in. cleats on the underside, 24in. to 30in. apart. The cleats must not be longer than the width of the bottom.

The length of the bottom will depend on whether it is to be carried on the column sheathing or blocked up from the yokes and butted against the sheathing. In the former case the length will be the clear span between the columns less ¼in. to ½in. clearance at each end, and the ends will be bevelled inwards at the top In the latter case the ends will be square, and the length will be the clear span between columns less twice the column sheathing thickness. In the first case a little leeway in measurement is allowed, but in the latter measurement of the bottom must be accurate. The former method is generally used when the bottoms are to remain in place after the sides are stripped, and the latter when the sides and bottom are stripped together as a unit, as it gives a little more clearance after the columns are stripped. When the bottom is carried on the sheathing the column is a little easier to strip. When the beam bottoms are carried on the girders either construction may be used, and the length will be accordingly, the girder taking the place of the column.

The depth of the side girder will be measured from the under side of the slab sheathing to the bottom of the girder bottom. The side is usually made exactly this depth, but to save ripping a board, all full-width boards may be used and the side allowed to project below the bottom, in which case notches will have to be cut at the posts to allow the bottom to bear on the caps. The sides should never bear on the bottom, but always overlap. The length of the side will depend on the system of framing used. The best method is to make the length of the side equal to the clear span between columns less twice the thickness of the column sheathing less about 1½in. each end for clearance; that is, if the columns are 18in. square and 18ft. on centre, and the sheathing used is 1½in., the girder side will be 16ft. 0½in. long. The ends are bevelled outwards, and the 1½in. clearance is afterwards filled in with a bevelled batten, as mentioned later.

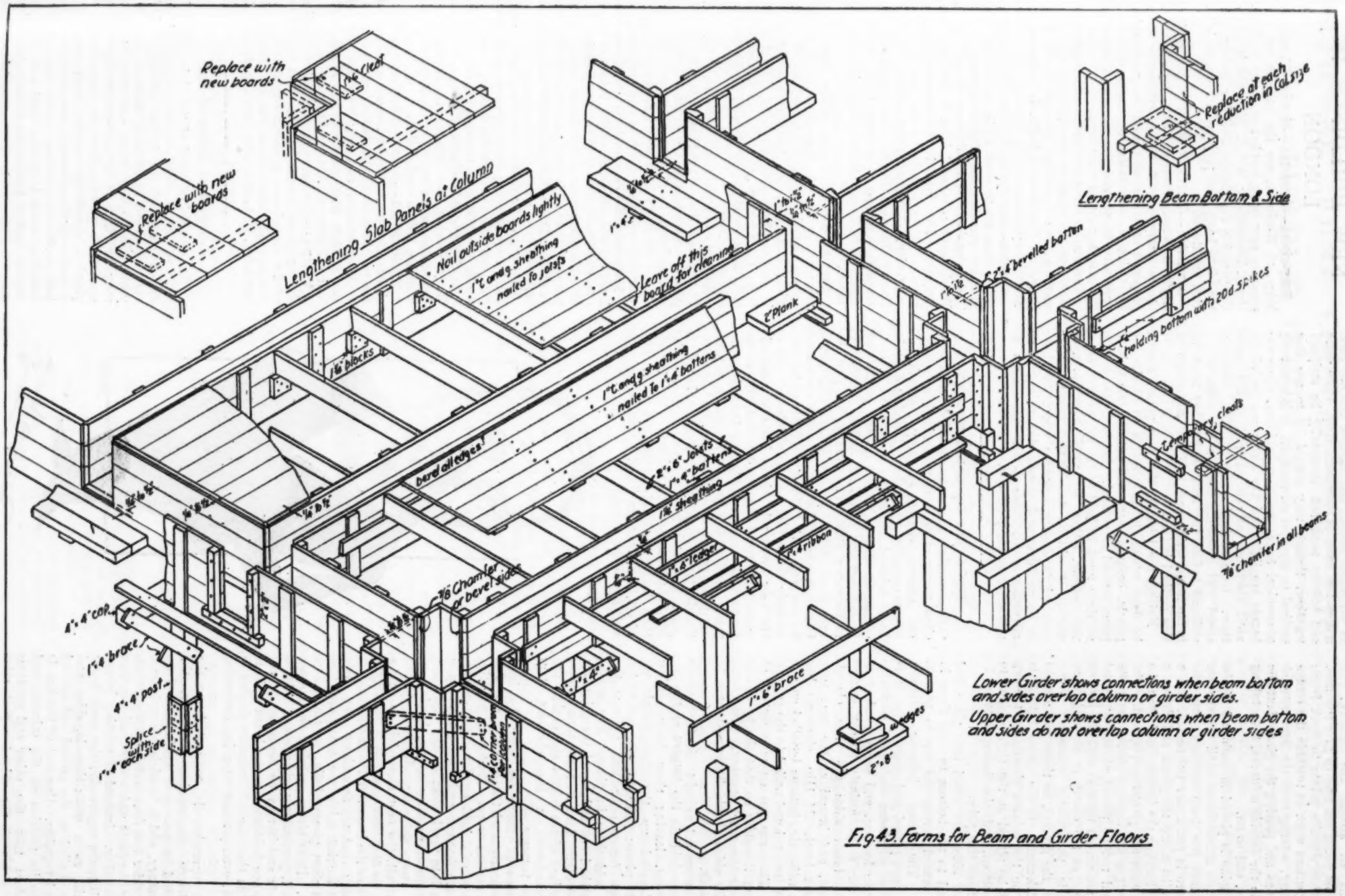
Another method is to make the length equal to the clear span less twice the sheathing thickness, or the ends of the sides will be flush with the column sheathing, and are covered with an independent bevel strip. Still another method is to carry the sides over the column sheathing, but stopping ¼in. to ½in. from the inside face and bevelling the ends inwards; in this case the length will be the clear span less ½in. to 1in. The latter two methods make the column sides less easy to strip and leave small fins on the concrete at the junction of side and bottom bevels unless the space is filled in. The first method will be considered best practice, and the slightly extra labour cost will be more than saved when it comes to stripping. The boards are nailed together with battens 24in. to 30in. on centre, the size depending on the depth, using 1in. by 4in. battens up to 15in.; 1½in. by 4 in., from 15in. to 24in.; 2in. by 4in., from 24in. to 36in.; and 3in. by 4in. for greater depths. The boards should be well clamped together before nailing, to close up the joints. The end battens should be a few inches in from the ends.

The openings for the beams correspond to the openings in column heads for the girders. The width will be ½in. to 1in. wider than the width of the beam; the depth will be ½in. to ½in. greater than the depth of the beam; and all edges will be bevelled inwards. If the beam bottom is carried on the sheathing, as must be done anyway if there is not much difference in depth between the beam and girder, the opening must be the depth of the beam plus beam bottom, and the bottom edge will be left square; and the width of the opening will be that of the beam plus twice the beam side thickness. To support the bottom a short piece of 2in. by 2in. or 4in. is nailed under the opening in either case. Temporary cleats should be nailed across the openings until the sides are erected and braced.

If the beams are deep the openings will leave the girder sides weak, and they will be liable to break when stripping. A good method of overcoming this is to build the side up to the underside of the beam bottoms as a unit with the girder bottom, nailing them permanently together and stripping together. The remaining portion of the sides is then built as separate units from column to beam, and beam to beam, leaving 1½in. clearance at each end if desired, and letting the battens project below the sheathing for lap. They are built the same way as girder sides, preferably leaving 1½in. clearance each end as mentioned. The connection to the girder is the same as the connection of the girder to the column. They are nailed to the side battens at a distance down equal to the depth of the joists. They should stop off a few inches from the ends of the sides. The top surface must be level so that the joists will not have to be wedged up or cut down to give a level floor. For spans up to 6ft., 1in. by 4in. will be sufficient; for greater spans 1½in. material should be used. Instead of a continuous ledger, 6in. by 6in. blocks by 1½in. thick are often nailed on the beam sides at the spacing of the joists. This will save some material, as waste can be used and the joists will be easier to strip.

To the top of the post is spiked a cap of the same size as the post and about 15in. to 18in. longer than the width of the beam. The ends of the cap are diagonally braced back to the post by short pieces of 1in. by 4in. or 6in. on opposite sides. The posts should be carefully cut off square at each end to obtain full bearing. The posts will rest on wedges, which should be hardwood, 8in. to 10in. long, 4in. to 6in. wide, and tapering from 3in. down to about ½in. The wedges are generally placed on a 2in. by 8in. sill about 12in. long. If bearing on soft ground, the size of the sill should be calculated to give a low pressure on the soil, not exceeding 1 ton per square foot. The required length of post should be noted before ordering, as this is a place where there can be much waste. Spliced posts should be avoided; but they are sometimes necessary, especially when a story height changes. They should have long cleats at the joint on all four sides, well nailed, and the abutting ends of the posts should be square. The posts, if longer than 8ft., will have to be braced at the centre with 1in. by 6in. boards in both directions, placed horizontally.

The diagram on p. 659 shows the assembled forms, and methods of building the units and making the connections. The different parts being ready to erect, the carpenters should work in three gangs, one placing bottoms, another sides, and the last one joists and slab panels. The outside wall columns are first set and plumbed, and on these are placed the


Replace with new boards
Cleat
Replace with new boards
Lengthening Slab Panels at Column
Nail outside boards lightly
1" thick sheathing nailed to joists
Leave off this board for cleaning
2" Plank
1" thick sheathing nailed to 1"x4" battens
1"x6" Joists
1"x4" battens
1" sheathing
1"x6" Ledger
4"x4" Ribbon
1"x6" brace
4"x4" cap
1"x4" brace
4"x4" post
Splice with 1"x4" each side
Lengthening Beam Bottom & Side
Replace at each reduction in Column
2"x4" bevelled batten
holding bottom with 20d Spikes
Key cleats
¾" chamfer in all beams
¾" Chamfer or bevel sides
Lower Girder shows connections when beam bottom and sides overlap column or girder sides.
Upper Girder shows connections when beam bottom and sides do not overlap column or girder sides
Fig 43. Forms for Beam and Girder Floors

Forms for Beam and Girder Floors.

FROM "DESIGN AND CONSTRUCTION OF FORMWORK FOR CONCRETE STRUCTURES," BY MR. A. E. WYNN. (*See page* 658.)

beam bottoms all around the building, two corner columns being set first to give the line. This establishes definite points to work from, and the carpenters work in towards the centre of the building, setting next the first interior row of columns and placing the girder bottoms from these to the outside columns, then taking the next row, and so on.

One 20d. spike is placed in each end of the bottom and not driven home until the spacing of the columns has been checked with the tape. A shore is put under the centre, and a carpenter walks along the plank and drives a spike into it through the bottom, and then the remaining shores are placed and spiked. The sills and wedges are inserted under the posts —they should not be placed at the top—and the wedges are driven tight so that the bottom has a camber at the centre of about ¼in. in 10ft.; this is particularly necessary when shoring from the ground, as there will always be some settlement. If the girder bottom is not carried on the column sheathing, the top yoke should be placed at the right height to carry the bottom, and the beam bottom is blocked up from this yoke.

The girder sides are lifted into place and lightly nailed to the bottom to hold them in place, and braced across the top to prevent spreading. The beam bottoms between girders are next placed and shored up. It is important that all shores are placed plumb to avoid eccentric loading, and hence bending in the shore; this is particularly true of spliced shores. The beam sides are then placed, lightly nailed, and braced at the top: they should be set level. If 1½in. clearance has been left, 2in. by 4in. battens bevelled on one side are now inserted and nailed to the column or girder. They are put on now instead of when making the sides so that the bevel can be cut to suit the exact opening. The centre of the girder sides should be braced back to the beam sides.

If the joists are not nailed to the floor panels they are now laid on the ledgers at the required spacing, leaving them loose. When they are levelled up the floor panels are dropped into place; these are also not nailed down, except for one or two nails at the corners to hold them in place. The panels must be notched out and round the columns; this is more easily done in place than before. The lower edges of the beams and girders are usually covered with a ¾in. chamfer strip nailed to the bottoms.

The bottom of the sides must be held against the pressure of the concrete, and this is done in various ways. Beams up to 24in. total depth can be held by driving in a 20d. spike at each batten, and two intermediate ones driven into the bottom on the slant and in opposite directions, leaving the heads projecting for easy stripping. Without spiking the sides at all, the best method is to nail a 1in. by 4in. or 6in. ribbon on top of the shores on each side of the beam, and this will hold in any ordinary beam. Sometimes the side battens are carried below the beam and tied across with short pieces of 2in. by 4in. below the bottom. Bolts above or below the bottom are also used, particularly when heavy battens are required; and it may be necessary to use a bolt or wires half-way up the beam if it is very deep, as then the side becomes similar to a wall form, even perhaps requiring horizontal wales.

The last operation is to cross-brace the shores. Before commencing to pour, the wedges should be gone over and tightened up where necessary, and it is advisable to have a carpenter under the floor watching the forms, particularly the posts and wedges, all the time during concreting. Instead of erecting beams sides and bottoms separately, the beam boxes can be built as a unit; that is, sides and bottoms are nailed on the ground and erected and stripped together. One end of the box is up-ended to its position on the column, and the carpenters take the other end on their shoulders, and with the aid of a post raise it up on to the top yoke of the other column. There will be more weight to handle, though fewer pieces, and the fitting can be done more accurately. The sides are spiked to the bottom as explained before, and ribbons are not used unless the beam is over 24in. deep. The sides and bottom need not necessarily be stripped together, though they should be to use this method to the best advantage. It is generally economical for a one-story building, since the beams are light and the forms can be left in until they can all be stripped at the same time. In a multiple-story building, however, speed will generally require the sides to be stripped before the bottom, so they must be independent units and half the advantage of this method is lost.

Nailing the joists to the floor panels should be done where it is possible to handle the panels, because there will only be one unit to place instead of several. Isolated beams with no slabs must be held at the top as well as at the bottom, either by wood ties, bolts, or wires. It will be noticed that few nails are required during the erection; where they have to be withdrawn double-headed nails are an advantage. All these details are shown in the diagram on page 659.

Forthcoming Canadian Construction.

Construction contracts awarded in all the cities, towns, villages and rural districts throughout Canada during February, according to figures compiled by MacLean Building Reports, Ltd., totalled 19,516,700 dollars (£3,903,000), compared with 16,771,800 dollars (£3,354,000) in January and 13,477,600 dollars (£2,695,000) in February, 1926. The total for the first two months of 1927, 36,288,500 dollars (£7,257,000), is an increase of 38.8 per cent. over the awards for the same period of 1926. This large increase so early in the year is attributable not only to the very favourable winter building season in some portions of the country, but also to the better tone for general business throughout the year. Contemplated new work, for which plans are being prepared has been reported in exceptionally large volume since the beginning of the year, the total for the year to date being 159,314,000 dollars (£31,862,000). This is more than double the total for the first two months of 1926, and is indicative of a construction year well above the average.

The National Federation President.
From a Caricature by Mr. A. J. Geary.

NEW BUILDINGS IN LONDON

Bury-street.—Premises.—Messrs. Thomas & Edge, of Woolwich, are the builders for new premises now being erected on a site in Bury-street, Bloomsbury, W.C.1. The work is for the Co-operative Permanent Building Society, and the plans have been prepared by the Society's own architects.

Carshalton.—Extensions.—The Metropolitan Asylums Board recommend that, in the event of the necessary sanction being forthcoming to the proposed extension of Queen Mary's Hospital for Children, at Carshalton, an architect be appointed to prepare the plans and supervise the carrying out of the work.

Croydon. — Enlargement. — Enlargements, including the addition of a balcony, are to be made at the Palladium Cinema, North End, Croydon. The architect is Mr. Bertie Crewe, 75, Shaftesbury-avenue, W.1.

Croydon.—Houses.—The Southern Foundries, Ltd., are to erect 23 houses and 24 flats in a new street, north of Stafford-road.

Croydon.—Housing.—Messrs. G. & C. A. Parris have purchased land in Stafford-road, Croydon. This land is for housing purposes only.

Croydon.—Accommodation.—The Croydon County Borough Council has instructed the Borough Engineer to prepare plans and estimates for additional slipper baths at the Central Baths.

Denmark-hill.—College.—Plans have been prepared by Mr. A. Gordon, L.R.I.B.A., 97, Queen Victoria-street, E.C.4, and Mr. G. J. M. Viner, L.R.I.B.A., 23, Knightrider-street, E.C., in collaboration with Sir Giles Gilbert Scott, R.A., for a college on a site on Denmark-hill, S.E., as a memorial to General Booth for the Salvation Army.

Balham.—Alterations.—Messrs. W. T. Champion & Son, of Peckham Rye, S.E., are the general contractors for the structural alterations and additions to 137–139, High-road, Balham. Messrs. Young & Co., of 6, Queen Anne's-gate, Westminster, are supplying the steelwork.

Harrow-road.—Rebuilding.—A scheme is in hand for the rebuilding of the Prince of Wales Cinema, Harrow-road. The new building will afford seating accommodation for about 2,500 people. The cost is estimated at £100,000. Mr. J. Stanley Beard, 101, Baker-street, W.1, is the architect.

Holborn. — Extensions. — Barclay's Bank, Ltd., are extending their premises in Holborn, E.C., and Messrs. J. Smith & Sons, builders, of South Norwood, S.E., are carrying out the work.

Lea Bridge-road.—Redecorating.—The Mark House Cinema, Lea Bridge-road, Leyton, is to be redecorated for Mr. H. Pearl, of the Biograph Theatre, Wilton-road, S.W.1.

Mitcham-road.—Baths.—The Croydon Council have for some time had under consideration the provision of slipper baths and washhouses at Mitcham-road, and they have now directed the Borough Engineer to submit sketch plans and estimates for the works.

Victoria.—Cinema.—On the site running through from Vauxhall Bridge-road to Wilton-road a new cinema is now being erected. The cost is estimated at about £90,000. The architect is Mr. E. A. Stone, 20, Berkeley-street, W.1.

University College of Hull.

The organising board of the University College of Hull have recently approved the sketch plans of the initial buildings which make provision for all likely needs for some ten years. In the first stage, one complete quadrangular block on the eastern frontage will be erected to accommodate the departments of physics, chemistry, zoology, and geography, a temporary library and a temporary assembly hall and common rooms, a refectory, and other buildings needed by the staff and students. On the western part of the frontage to Cottingham-road three wings of a quadrangular building will be erected to accommodate administration and a faculty of arts, as well as the department of botany. It is expected that the working drawings will be ready in a few weeks.

NATIONAL JOINT COUNCIL FOR THE BUILDING INDUSTRY

The annual meeting of the National Joint Council for the Building Industry was held at Y.M.C.A. Building, Tottenham Court-road, London, W.1, on Thursday, March 24, Mr. W. E. Collier being in the chair.

We take the following extracts from a copy of the official report which we have received :—

The report of the deputation appointed to confer with the Scottish Regional Joint Committee respecting the position created by the expressed intention of the Scottish Building Contractors' Association to reduce the rate of wages payable to labourers had been circulated, and the Vice-Chairman reported that subsequent to the visit of the deputation to Edinburgh, the Scottish Building Contractors' Association endeavoured to enforce the proposed reduction of the labourers' rate. This action was resisted by the operatives withdrawing labour. Following prolonged negotiation it had now been agreed that work shall be resumed on the *status quo*, the Industrial Court being asked to give its opinion upon the following question :—

Should the National Agreement apply to the building trade labourers affiliated to the National Federation of Building Trades Operatives who are employed by members of the Scottish Building Contractors' Association in Glasgow and the West of Scotland ?

The position is that the members of the Scottish Building Contractors' Association are now paying the prescribed rate to labourers and the half-penny increase to bricklayers.

On motion made and seconded the report of the deputation was received and adopted, and the General Purposes Committee was authorised to arrange for the representation of the Council, if required, at the hearing by the Industrial Court.

In the absence of the chairman of the Commission (Mr. F. G. Hodges), Mr. Forsdike presented the report of the Grading Commission, and the adoption of the section dealing with the application from the North Western Region for an exceptional rate for No. 1 Area, was moved and carried.

The South Wales Region section of the report was adopted, as well as the section of the report relating to the Midland Region. A further point emphasised in the discussion was the need for Regional Joint Committees to exhaust the possibilities of negotiation now open to them before referring matters to this Council for decision. After serious consideration the Commission agreed to refer back to the Regional Joint Committee the whole position respecting the painters in the South Western Region. A communication was reported from the secretaries, North Western R.J.C., stating that that R.J.C. had agreed to recommend "That the North Western No. 9 Area be regraded from B1 to B on and from May 1, 1927, and to A3 on and from July 1, 1927," and asking that this recommendation be submitted to the Council for approval. The North Western No. 9 Area comprises Abergele, Bagillt, Bettws-y-Coed, Colwyn Bay, Conway, Denbigh, Holywell, Llandudno, Mostyn, Prestatyn, Ruthin, Rhyl, and St. Asaph. It was moved and seconded that this recommendation be approved. Mr. Barron presented the report of the General Purposes Committee and first moved the adoption of the section dealing with the references from the Eastern Counties Region, which was carried. The section of the report dealing with references from the South Western Region on points of order was next agreed.

The recommendations respecting the proposed variations for application to the Bristol District were then proposed, seconded, and agreed. The adoption of the section of the report dealing with the London Region was carried. The report in respect of the claim for joiners' tool allowance set out that evidence for and against the claim had been heard, which the Committee proposed to examine fully at the first opportunity and duly report the result. This report was received.

This concluded the consideration of the report of the General Purposes Committee, and the chairman observed that by the adoption of certain of the recommendations of the Committee the Council had given decisions of some importance, especially in this initial stage of dealing with regional proposals, as the decisions to contain principles for the guidance of members of the Council and of those who have to deal with notices in their own Regions. He suggested that these decisions should be tabulated in such a manner as to be readily accessible :—

Q.—Is it permissible, by means of a "Variation Amendment," to extend the schedule appended to National Working Rule 3 by adding thereto other classes of work ?

A.—Proposals to add other classes of work to the Schedule of Working Rule 3 may properly be considered by Regional Joint Committees as "Variation Amendments."

Q.—Are the following proposals capable of Regional initiation as "Variation Amendments," viz. :—

(*a*) A mutually-agreed scheme to cover payment for time lost over which the workman has no control ;

(*b*) An allowance of 3s. per week for tool money to carpenters and joiners ; and

(*c*) A mutually-agreed scheme to cover payment for Bank Holidays and one week during the summer period ?

A.—These proposals cannot properly form the subjects of "Variation Amendments," as their effect, if adopted, would be to introduce into the agreement provisions of a character entirely different from any now contained therein.

Q.—Is it competent for a Regional Joint Committee to recommend a variation of a national rule to apply only to part of its Region, the R.J.C. having decided to deal as a Regional unit with Variation Amendments ?

A.—A Regional Joint Committee, in the circumstances described, is entitled to recommend that a proposed Variation Amendment shall apply throughout its Region or to such particular Area within its Region as may be specified.

Submission : That the proposal to add other descriptions of work to the schedule contained in Working Rule 3 is not admissible as a "Variation" amendment, in view of the agreed definition that a "Variation" Amendment is one which proposes to vary a detail. It was submitted that this should be interpreted to mean that each particular item contained in the schedule of Rule 3 is a detail of the agreement, and that accordingly the application to Rule 3 of a "Variation" Amendment should be limited to varying these particular items.

Reply : The definition of a "Variation" Amendment, to which reference is made, follows immediately after the definition of a "Constitutional" Amendment as set out below :—

1. A "Constitutional Amendment" means one which proposes to alter the essence of this Constitution or any Agreement essential thereto as distinguished from—

2. A "Variation" which proposes to alter a detail thereof.

These definitions are complementary and accordingly they must be read together. When read together the word thereof, at the end of definition 2, refers to the Constitution and not to the detail of a particular agreement.

The essential part of the Agreement contained in Working Rule 3 is the provision for payment of extra wages to workmen engaged upon certain classes of work.

The schedule of operations for which extra wages is payable is, in its entirety, a detail which may be enlarged or diminished by means of variation amendments, always provided that any items added come within the description "Classes of Work."

The election of officers then took place. On motion made and seconded, Mr. W. E. Collier, who was heartily congratulated on his restoration to health, was unanimously re-elected chairman. Mr. Thomas Barron was unanimously re-elected vice-chairman. Messrs. A. G. White and R. Coppock were re-elected joint secretaries. Messrs. J. Davidson and A. G. Gossling were re-elected auditors. Mr. A. J. Lloyd was re-appointed clerk. Committees were appointed as follows :—Employers' representatives : Messrs. J. P. Cox, J. Davidson, A. J. Forsdike, J. C. Gilchrist, E. W. King, and F. Thorne. Operatives' representatives : Messrs. A. Gill, A. G. Gossling, I. Marks, W. Pickles, S. Sigsworth, and S. J. Wright. Employers' representatives : Messrs. J. H. Barker, J. P. Cox, A. J. Forsdike, F. G. Hodges, and E. W. King. Reserves : Messrs. F. Thorne and R. J. Wormell. Operatives' representatives : Messrs. J. A. Gibson, H. McPherson, S. Taylor, R. Wilson, and F. Wolstencroft. Reserves : Messrs. A. G. Gossling and F. Kennedy.

"THE APPRECIATION OF THE CRAFTS"

The Welsh Department of the Board of Education, Whitehall, S.W.1, has issued a pamphlet (Form 1050, Wales) on the subject of a short introductory course in "The Appreciation of the Crafts" for Teachers in Wales, 1927. Extracts from the pamphlet are as follows :—The Welsh Department of the Board of Education has been impressed with the need for a greater recognition of the value of craftsmanship and good workmanship in everyday life in Wales. In order, therefore, that teachers in Wales, who can do so much to influence the common standard of judgment and appreciation, may see and study for themselves what is being done to-day by capable students and craftsmen, the Welsh Department of the Board of Education has made arrangements for a short introductory course in "The Appreciation of the Crafts" to be held in London at the Royal College of Art, South Kensington, S.W.7, from August 2 to August 16, 1927. The course, which will have as its main object the demonstration of the bearing of good craftsmanship on daily life, is intended to give teachers an insight into the aims and methods of workers in woodwork, pottery, embroidery and lettering. There will also be introductory general talks on the appreciation of art to emphasise what it is that differentiates insincere and pretentious workmanship from work which derives its beauty from its sincerity and from the adaptation of the material to its fit purpose. It is hoped to make arrangements with the Rural Industries Bureau for teachers attending the course to be afforded opportunities of learning something of the work of this important organisation, which aims at giving information and advice to the rural workers or to persons wishing to engage in or to promote rural industries. The Bureau is prepared to give information and advice to inquiries as to various country trades and crafts, viz. :—Metal work, including blacksmithing and mechanical repair work ; woodwork, including wheelwrighting and woodturning ; underwood crafts ; osier-growing, basket-making, and rush work ; hand weaving and spinning, rug making ; the utilisation of straw, peat, sawdust, and other waste products ; book-binding, as an adjunct of school-work (on lines similar to those in operation, for many years, in some Cardiganshire schools). The course will be under the special direction of Dr. W. Williams, Divisional Inspector for Wales, who will be assisted by Mr. J. M. Holmes, Slade Diploma of Fine Art, together with an expert staff. Details of the course will be forwarded later to the teachers selected to attend.

TOWARDS A SCIENCE OF BUILDING

The work done by his Department was the subject on Thursday week of a lecture delivered by Dr. R. E. Stradling, Director of Building Research for the Department of Scientific and Industrial Research. The lecture was delivered at the Institution of Structural Engineers, Upper Belgrave-street, London, S.W., and was illustrated by lantern slides. Mr. H. J. Deane (President of the Institution of Structural Engineers) was in the chair.

The lecturer said that the idea of experimentation in such an industry as building was not new; the history of the industry itself was one of experimentation; we thought of it as founded on traditional knowledge, but that knowledge had been built up by practical experience, which was really experimentation on a large scale. He expected most of those present knew the story of the old bridge at Pontypridd. That bridge was the work of William Edwards, a self-taught mason, who after being a shepherd on the hills drifted into the building of dry walls. From this he got on to more elaborate masonry, and to get further experience articled himself to some masons at Pontypridd. He made a name for himself, and at the period immediately before the building of railways, when there was a great development of roadmaking in this country, he found himself commissioned to put a bridge over the Taff at Pontypridd. He had, of course, received no training in theory to qualify him for the task, but set to work as a practical man. He built a bridge of three arches with piers in the stream, but when storms came and piled up debris against those piers that bridge was swept away. Then he built a second bridge consisting of a single arch. But that arch was very heavy at the haunches, and very thin at the crown, and when he had nearly completed the parapet walls the keystone was forced out and the bridge collapsed. The kind of instinct which develops in every structural engineer worth the name made Edwards feel that the haunches of his arch were too heavy. So when he started again he put three holes through each of the haunches, and thus he successfully completed a bridge which stands to this day. It was by methods such as those of Edwards that the pioneer had to work, and the object of such a Department as that of Building Research was to experiment on a small scale, bringing in the work of the mathematician, the physicist and the chemist, so that such large-scale experimentation should not be needed. Laboratory tests, however, were no good until they had been checked by practical experience. Of problems now being studied, those concerning the weathering of various materials constituted one of the most important groups, all the more important because so little was known on this subject. The endeavour was made to compare things by frost tests, chemical tests, and so on. The ideal was to be able to design for weathering conditions in the same way as an engineer could design for strength; but at present this was impossible, and it was not even certain that the tests now being applied had any real bearing on practical conditions. In this connection, three major problems were receiving attention: the development of accelerated weathering tests, the mixing of materials for concrete, etc., and the preservation of stone; and as regards the mixing of materials a certain amount of entirely new work had been done. Everybody realised that a rise in temperature meant expansion for the majority of materials: it was not generally known that an increase in moisture content produced a similar result. You might get simultaneous movements in a material due to both these causes. Associated with the expansion due to moisture was an extraordinary change in the physical properties of the material: one rather striking case was that of the Yorkshire sandstone, where the difference of strength might amount to 50 per cent., according to whether the material was absolutely dry or absolutely wet. Investigation had now shown that materials showing this moisture expansion were what the physical chemist called "jells," and the ascertainment of this fact was a real step forward in our knowledge of this type of material.

In a later part of his address the lecturer dealt with the research now being carried out along this line, saying that an instrument called the extensometer had been invented and made to test and measure the expansion or contraction of an object through absorption of moisture or evaporation. He explained the method by which this instrument worked, and said that with most things submitted to it, especially concretes, the first drying out was what mattered most.

Heating and ventilation were among the matters of which the lecturer spoke as being the subject of investigation at the Building Research Institution, and for this purpose a cottage had been built, he said, in the grounds where the experiments were carried on. For many years conductivity tests had been taken for special building materials, and most people had realised that those tests did not work out in practice. One reason for this was that it was very difficult in a laboratory to know what kind of heat transmission you were going to get in a hollow cavity wall. Another thing not known was the effect of changing surface on the outside, although it was known that this effect was very marked. Nor was the effect known of wind, rain, and so on. In a small wooden shed experiments were being made with thin roofing materials, and it had been demonstrated that when the roofing material was very thin it did not matter very much what the substance was. It might be iron or it might be asbestos, for heat did not go through very thin material by conduction but by radiation. To test the condensation of water on internal walls a little machine, specially invented and constructed, enabled a comparison to be made between different materials. It was interesting to know that a sheet of asbestos cement sheeting, if unpainted, would resist any tendency for water to condense upon it very well indeed; but a coat of some distempers now on the market, which had more oil in them than was usually realised, would cause condensation.

Among other things to which the lecturer alluded was the effect of indiscriminately placing building stones together. In one case he illustrated, where a building was of limestone in the upper stories and sandstone in the lower, the sandstone had disintegrated. Examination showed this was due to calcium sulphate which had come from the limestone.

Speaking of weathering, the lecturer said it was only now beginning to be realised that re-pointing might do more harm than good. Twenty-five or thirty years ago the mortar joints in a great many of our ancient buildings were very badly gone, and with the best will in the world the people responsible for repairing them re-pointed with hard cement mortar. But as a result the stone had now entirely decayed, whilst the mortar was left standing out. This was because water would get into a wall, had to get out again, and in getting out chose the easiest path, which before the re-pointing was through the old porous mortar. After a wall had been re-pointed with a material more impermeable than the stone, the easiest path was through the stone. For such purposes mortar should not be specified in terms of strength but in terms of relative rates of evaporation as compared with the material it was to be associated with.

Another thing of which the lecturer showed a photograph was a shed put up chiefly to allow panels to be exposed to the air so that tests could be carried out on them. One such panel, inside the building, was being used to carry out tests of painting on plaster. Another panel, outside the building, was for the exposure of water paints; and a third was to get rates of penetration for temperature or moisture in different types of building materials. An interesting and important matter now being investigated was that of clinker concrete, and a machine had been invented and was being used to measure the rate of expansion of clinker due to oxygen absorption. One thing that had come out, but which was already known to a great many people in practice, was that the serious trouble that clinker concrete gave was not always due to sulphur. A failure when due to sulphur took a fairly long time, and if the clinker had been exposed for a considerable period on a heap there was not much fear of sulphur. The real trouble was with unburned coal, and the curious thing was that it was not every coal but only certain kinds that caused this trouble. The Department were trying to get down to which coals and why, but meanwhile houses were falling down.

Dr. W. N. Thomas, who was introduced to the audience as second in command at the Building Research Institution, added some remarks on work being done there to ascertain what effect freezing had on the weathering properties of building materials. He said that in some countries frost had a very great effect on the weathering properties of stone, bricks, tiles, and materials of that kind. Theoretically, if the pore spaces of a stone were filled 90 per cent., the 10 per cent. which was left was just sufficient for the ice to form without disrupting the stone; but in actual practice about 80 per cent. was the figure, because the water was not evenly distributed. If about 80 per cent. of the pore space was filled, the material would stand the frost action as a rule; but if the proportion was more than about 80 per cent. the material would generally fail. This was rather different from the usual expectation. It was generally considered that if a material was very porous it probably would not stand frost action, but experiment showed that it did not matter very much what the moisture absorption was provided the pore space was not filled more than 80 per cent.

Mr. Andrews, who moved a vote of thanks to the lecturer, said we were not so deficient in what might be called the mathematical analyses of building problems as in knowledge of the fundamental facts of the materials. He was glad to see the Department was attacking such problems in the way most likely to be useful to practitioners. Directly scientific investigation was undertaken it showed how necessary it was to cast aside preconceived ideas.

Major Petrie, in the course of some remarks supporting the resolution for a vote of thanks, said there were three bridges near Croydon similar to the one Edwards had built at Pontypridd, with exactly the same holes through the haunches. They had been built across the old Croydon Canal, and now spanned the railway not far from West Croydon Station.

The vote of thanks was heartily accorded, and the proceedings terminated.

New Lambeth Bridge.

The chairman of the Improvements Committee of the London County Council has announced that work on the new Lambeth Bridge may be begun before the end of the year. It is also stated that before the old bridge is removed a temporary foot bridge will be erected. The work on the new bridge will extend over two to three years from the date of the contract.

The Shakespeare Memorial Theatre.

Under plans just announced by Professor George Baker, of Yale University, America is to take a million-dollar (£200,000) share in the international movement to rebuild and endow the Shakespeare Memorial Theatre at Stratford-upon-Avon. In all £500,000 will be raised, so it is stated, throughout the world to complete the plans of the new theatre and its associated dramatic school, festival company, museum, and library.

RATES OF WAGES IN THE BUILDING TRADE

Every endeavour is made to ensure accuracy, but we cannot be responsible for errors.

	Masons	Bricklayers.	Carpenters Joiners	Plasterers.	Slaters.	Plumbers.	Painters.	Labourer
Aberdare	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Accrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Alfreton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Alnwick	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Altrincham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/0½
Ashford (Kent)	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½
Ashington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Ashton-under-Lyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Aylesbury	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Aylsham	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Banbury	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Barnsley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Barnstaple	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Barrow-in-Furness	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Barry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Basingstoke	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Bath	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bedford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Berwick	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Bexhill	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Birkenhead	1/10	1/10	1/10	1/11	1/10	1/10	1/9½	1/4½
Birmingham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bishop Auckland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Blackburn	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Blackpool	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bolton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bournemouth	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bradford	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bradford-on-Avon	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Braintree	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Brentwood	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Bridgwater	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Bridlington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Brighton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bristol	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bromsgrove	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Bromyard	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
Bungay	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Burnley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Burton-on-Trent	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bury	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Buxton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Cambridge	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Canterbury	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Cardiff	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Carlisle	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Chatham	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Chelmsford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Cheltenham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Chester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Chesterfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Chorley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Cirencester	1/5	1/5	1/5	1/5	1/5	1/5	1/4	1/1
Clacton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Colchester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Coventry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Cranbrook	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Crewe	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Cromer	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Darlington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Deal	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Denbigh	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Derby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Devizes	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Dewsbury	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Doncaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Dorchester	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Dorking	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Dovercourt	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Driffield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Droitwich	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Dudley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Durham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Eastbourne	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
E. Glam. (Mon. Val)	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Ely	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Exeter	1/7	1/7	1/7	1/7	1/7	1/7	1/6	1/2½
Exmouth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Fakenham	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Felixstowe	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Folkestone	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Frome	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Glossop	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Gloucester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/5½	1/2
Godalming	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Goole	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Gosport	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Grantham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Great Yarmouth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Grimsby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Guildford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Halifax	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Harpenden	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Harrogate	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hartlepools	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Harwich	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Hastings	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Hatfield	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Hednesford	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Hereford	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½
Herne Bay	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Hertford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Hitchin	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Hoddesdon	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	11½
Holt	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½
Huddersfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hull	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hunstanton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Huntingdon	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Isle of Wight	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
Ipswich	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Keighley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Kettering	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Kidderminster	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
King's Lynn	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Lancaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Leamington Spa	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Leeds	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Leicester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Leighton Buzzard	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Lichfield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Lincoln	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Littlehampton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Liverpool	1/10	1/10	1/10	1/11	1/10	1/10	1/10	1/4½
Llandudno	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Llanelly	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
London:								
12 m. radius	1/9½	1/9½	1/9½	1/9½	1/9½	1/9½	1/8½	1/4½
12–15 m. radius	1/9	1/9	1/9	1/9	1/9	1/9	1/8	1/4
Loughborough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Lowestoft	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Luton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Macclesfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Maidstone	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Malvern	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Manchester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Mansfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Margate	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Market Harb'rough	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Matlock	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Melton Constable	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Melton Mowbray	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Merthyr Tydfil	1/8	1/8	1/8	1/8	1/8	1/8	1/7	1/3½
Middlesbrough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Newark	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Newbury	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Newcastle-on-Tyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Newcastle-ur-Lyme	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
New Forest	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Newmarket	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Newport, Mon.	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Northampton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Norwich	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Nottingham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Nuneaton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Oakham	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Oldham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Oxford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2½
Paignton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Peterborough	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Plymouth	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Pontypridd	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Portsmouth	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Preston	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Ramsgate	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Reading	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Redcar	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Redditch	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Reigate	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Retford	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Ripon	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Rochdale	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Rochester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Rugby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Saffron Walden	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
St. Albans	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
St. Helens	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Sawbridgeworth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Saxmundham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
Scarborough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Sevenoaks	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Sheffield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Shrewsbury	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Sittingbourne	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Southampton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Southend-on-Sea	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Southport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
South Shields	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stevenage	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Stockport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stockton-on-Tees	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stoke-on-Trent	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stourbridge	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Stourport	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Stowmarket	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Stratford-on-Avon	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Stroud	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5	1/1½
Sunderland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Swaffham	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Swansea	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Swindon	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Tamworth	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Taunton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Thetford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Torquay	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Totnes	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Trowbridge	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Tunbridge Wells	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Uttoxeter	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Wakefield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Walsall	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Wallsend	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Warminster	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Warrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Warwick	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Wells (Norfolk)	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Welwyn Gar. City	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
West Bromwich	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Weston-sup.-Mare	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Weymouth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Whitby	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Wigan	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Winchester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1½
Windsor	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Wisbech	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Wolverhampton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Woodbridge	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Worcester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Worksop	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Worthing	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1½
Wrexham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Wroxham	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Wymondham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
York	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½

(For rates of wages in the Building Trade in Scotland, see page 668.)

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

Following is a list of abbreviations:— Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor D.S.; Clerk, C.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; County Architect, C.A. Surveyor, S; Engineer, E; Borough Architect, B.A.; Architect, A.

BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING, etc.

Apr. 25.—**Ashford.**—Convenience.—At the War Memorial grounds, Station-rd., for U.D.C. Wm. Terrill, S., 5, North-st.

Apr. 25.—**Barrow-in-Furness.**—Boxes.—Additional dressing boxes and lavatory accommodation at public baths, Abbey-rd., for Corporation. B.E.

Apr. 25.—**Bingley**—Building.—Police Station, for West Riding C.C. P. O. Platts, A.R.I.B.A., C.A.

Apr. 25.—**Blofield.**—Cottages.—Thorpe St. Andrew, 20; Acle, 8; South Walsham, 4; Ranworth, 2; Hemblington, 4, for the R.D.C. G. J. Skipper, F.R.I.B.A., 7, London-st., Norwich.

Apr. 25.—**Carmarthen.**—Houses.—26 non-parlour, on Morgan Arms housing estate, for C.B. G. L. Ovens, B.E. and S. Dep. £2.

Apr. 25.—**Crook.**—War Memorial.—For the Crook War Memorial Committee. R. Hannant, hon. secretary, St. Mary's-av.

Apr. 25.—**Durham.**—Alterations and Additions. &c.—Alterations and additions to Ledgate Council School; alterations and extensions to Sacriston Council School; erection of an electrical laboratory at Jarrow Secondary School, for the County Council. F. Willey, F.R.I.B.A., 34, Old Elvet, Durham.

Apr. 25.—**Durham.**—School.—Erection and completion of school to accommodate 880 scholars at Blackhal Colliery new Council school, for the Durham County Council. F. Willey, F.R.I.B.A., 340, Old Elvet Durham.

Apr. 25.—**High Spen. co. Durham.**—School.—Alterations, extensions and general repairs to Council school. F. Willey, F.R.I.B.A., 34, Old Elvet, Durham.

Apr. 25.—**Keighley.**—Lavatory.—In Cavendish-st., for T.C. W. H. & A. Sugden, A.'s, North-st.

April 25.—**Kempton.**—Filters.—Construction of 24 reinforced concrete primary rapid filters, for the Metropolitan Water Board. Office of the Board, Chief Engineer's Department (Room 201), 173, Rosebery-ave., E.C. 1.

Apr. 25.—**Manchester.**—Sanatorium.—For children, at Abergele, North Wales, for T.C. City A. Dep. £5 5s.

Apr. 25.—**Meriden.**—Houses.—10 parlour and 10 non-parlour at Coleshill; same at Water Orton; 2 parlour and 4 non-parlour at Nether Whitacre; 6 parlour and 6 non-parlour at Castle Bromwich, for R.D.C. H. Pickering, S. Dep. £2 2s.

Apr. 25.—**Purley.**—Fire Station, &c.—Erection of, for the Coulsdon and Purley U.D.C. E. C. King, C., Council Offices, Purley. Dep. £2 2s.

Apr. 25.—**Ruislip-Northwood.**—Shelter.—Also dressing rooms at Northwood Recreation ground, for U.D.C. H. R. Metcalfe, E. and S.

Apr. 26.—**Bedlington.**—Houses.—50 houses at Cambois, for Bedlingtonshire U.D.C. J. W. Pooley, S.

Apr. 26.—**Blofield.**—Cottages.—Freethorpe two pairs, Hassingham pair, Lingwood pair, Postwick pair, Wickhampton pair, Tunstall pair, Reedham four pairs, for R.D.C. L. F. Beckwith, The Institution, Lingwood.

Apr. 26.—**Cheshunt.**—Decorating.—At 48 houses in Andrew's-la., Fairley Way, for U.D.C. J. L. Sharpe, E. and S.

Apr. 26.—**Epsom.**—Cottages.—Pair at Waterworks, East-st., for U.D.C. A. C. Williams, A., Reids-buildings, Ashley-rd. Dep. £2 2s.

Apr. 26.—**Fishburn.**—Hall.—Assembly Hall, for Colliery Welfare Fund. W. A. Kellett, L.R.I.B.A., Lloyds Bank Chambers, Barnard Castle. Dep. £1 1s.

Apr. 26.—**Garforth.**—Houses.—10 scullery type on housing site, for U.D.C. C. Castelow, A.R.I.B.A., 10, Park-row, Leeds. Dep. £2 2s.

Apr. 26.—**Goldthorpe.**—Dwellings, &c.—Erection of, for the Bolton-upon-Dearne U.D.C. W. H. Adams, A.R.I.B.A., A., Council Offices, Bolton-upon-Dearne. Dep. £1 1s.

Apr. 26.—**Goldthorpe.**—Office.—Stores and office accommodation and construction of necessary sewer, at Goldthorpe sub-station, for Deane District Electricity Board. J. L. Hawksworth, C., Bolton-upon-Dearne.

Apr. 26.—**Great Ouseburn.**—Cottages.—Four at Arkendale, 6 at Rufforth, 2 at Green Hammerton, for R.D.C. H. C. Paine, S.

Apr. 26.—**Ilford.**—Painting.—Exterior of 100 houses on Horns-rd., housing estate, Barkingside, for T.C. H. Shaw, B.E. and S. Dep. £1 1s.

Apr. 26.—**Leeds.**—Pavilions.—Pavilions and conveniences at (1) Meanwood Recreation ground; (2) Stanningley Recreation ground; and (3) rebuilding of garages and stables at Roundhay Park, for T.C. W. T. Lancashire, City E.

Apr. 26.—**London.**—Lighting.—Electrical installation at Ring Cross estate, Islington, for L.C.C. Chief Engineer, Spring Gardens, S.W.1. Dep. £1.

Apr. 26.—**Maldon.**—Painting.—24 houses, Goldhanger-rd., Heybridge; 24 houses, Church-rd., Tolleshunt Knights; 14 houses, Mell-rd., Tolleshury; 9 houses, Kelvedon-rd., Wickham Bishops; and 8 houses, Colchester-rd., Great Totham, for R.D.C. Wm. Almond, S., 6, Market Hill.

Apr. 26.—**Maldon.**—Dwellings.—Pair of semi-detached houses near The Brook, Tolleshunt Knights, for R.D.C. Wm. Almond, S., 6, Market-hill.

Apr. 26.—**Wakefield.**—Offices.—County offices, Wood-st., for West Riding C.C. C.A.

Apr. 26.—**Walthamstow.**—Alterations.—Also additions in formation of art rooms and science laboratories, also detached buildings for gymnasium, manual instruction and domestic subjects at Queen's-rd. Central schools, for E.C. H. Prosser, A. Dep. £1 1s

✱Apr. 27.—**Bromley Common.**—Cottages.—Erection of 40 cottages, in blocks of four and pairs, for the Borough. F. H. Norman, T.C., Municipal Offices. Bromley, Kent. Dep. £2 2s.

Apr. 27.—**Chipping Norton.**—Houses.—12 in Churchill-rd., for T.C. B.S. Dep. 10s.

✱Apr. 27.—**Dartford.**—Hall and Institute.—Erection of for the Parochial Church Council of the Parish Church of the Holy Trinity, Dartford. Gerald E. Burgess, L.R.I.B.A., Station-approach, Dartford. Dep. £2 2s.

Apr. 27.—**Hove.**—Greenhouse.—At Hove Cemetery, Old Shoreham-rd., for T.C. B.S.

Apr. 27.—**Kiveton Park.**—Electric Lighting.—Installation at 62 semi-detached houses at Harthill, for R.D.C. B. D. Thompson, A., 73, Bridge-st., Worksop.

Apr. 27.—**Larne.**—Abattoir.—At Old Glenarm-rd., and water and sewerage extensions, for U.D.C. S., Victoria-st. Dep. £2.

Apr. 27.—**London.**—Alterations, Repairs, Plumbing and Builder's Work.—At St. Marylebone Hospital, Rackham-st., W. 10, for the Guardians of the Poor of the Parish of St. Marylebone. Constantine & Vernon, F. & A.R.I.B.A., 82, Mortimer-st., W. 1. Dep. £1 Treasury Note.

Apr. 27.—**Rathdown.**—Repairs.—To Kilgobbin Dispensary Residence, Sandyford, for B.G. P. H. McCarthy, Clerk's Office, Loughlinstown.

Apr. 27.—**Somerset.**—Sewers, &c.—Reconstructing an outfall at Easton-in-Gordano, and erecting a wall approximately 30 yds. in length on the bank of the River Avon about a quarter of a mile below Morgan's Pill; and (2) reconstruction Land Yeo outfall at Clevedon Pill, for Commission of Sewers. A. Powell, E., 10, Orchard-st., College Green, Bristol.

Apr. 27.—**Southampton.**—Enlargement.—Of Fawley Council school, including three classrooms, cloakrooms, offices, &c., and redecoration of existing buildings, for C.C. A. L. Roberts, C.A., The Castle, Winchester. Dep. £1 1s.

Apr. 28.—**Bosmere and Claydon.**—Cottages.—Ashfield 2, Barking 6, Battisford 4, Creeting Bottoms 6, Henley 6, Pettaugh 6, Stonham Aspal 2, Stonham Parva 4, Somersham 6, and Offton 6, for R.D.C. J. C. Anderson, Tudor House, Claydon, near Ipswich. Dep. £2 2s.

Apr. 28.—**Glasgow.**—Houses.—96 at Parkhead housing scheme, for Corporation. J. Lindsay, T.C., City Chambers.

Apr. 28.—**Hendon.**—Houses.—34 non-parlour, on Glebe-rd. site, for R.D.C. H. W. Rackham, S. and E.

Apr. 28.—**Leeds.**—Houses.—118, for Corporation (68 on the Meanwood estate, and 50 on the York and Selby-rd. estate). W. T. Lancashire, City E., Municipal Buildings.

Apr. 28.—**London.**—Painting.—Internal cleaning and painting works, provision of maple flooring and asbestos sheet ceilings in certain large wards, glazed partition across ward, &c., at hospital, East Dulwich-gr., S.E., for Southwark B.G. A. Saxon Snell & Phillips, A.'s, 9, Bentinck-st., Manchester-sq., W.1. Dep. £5.

Apr. 28.—**Macclesfield.**—Offices.—In Castle-st., for Cheshire Building Society. Fredk. C. Sheldon, A., 7A, King Edward-st. Dep. £3 3s.

Apr. 28.—**Preston-under-Scaur.**—Memorial Hall.—For Memorial Committee. H. Tomlins, Preston, Leyburn.

Apr. 28.—**Rawdon.**—Painting.—Also decorating work required at The Mitchell Memorial Home, for Governors. Education Architect, County Hall, Wakefield.

Apr. 28.—**Southend-on-Sea.**—Flats.—Erection of 22 flats, for the C.B. R. H. Dyer, B.E., Municipal Buildings, Clarence-rd., Southend-on-Sea. Dep. £2.

Apr. 29.—**Alnwick.**—Convenience.—Wagonway, for U.D.C. J. T. Robson, Town S.

Apr. 29.—**Torquay.**—Sheds.—Stores, sheds and other buildings at Refuse Destructor site, Upton, for T.C. Water E. Dep. £2 2s.

Apr. 30.—**Alnham.**—Painting, &c.—At Memorial Hall. J. Morrison, Hon. Sec.

Apr. 30.—**Crowmarsh.**—Renovation.—To 6 houses at North Stoke, Oxon., for R.D.C. P. C. A. Slade, C., 7, St. Martin's-st., Wallingford, Berks.

Apr. 30.—**Darlaston.**—Electric Light.—Electric wiring and fittings required in new Infants' Department of Slater-st., Council school, and in the additional classrooms, laboratory, &c., in Salisbury-st. Central Council school, for Staffordshire E.C. Moffett, Rosher & Mann, Consulting Engineers, Union Chambers, Temple-row, Birmingham. Dep. £1 1s.

Apr. 30.—**Dumfries.**—Additions.—Also alterations at Kirkconnel Police Station, for C.C. J. Robson, County C., County Buildings, Dumfries.

✱Apr. 30.—**Durham.**—School.—Erection and completion of Fishburn new Council school, for the Durham County Council. F. Willey, F.R.I.B.A., 34, Old Elvet, Durham.

Apr. 30.—**Edinburgh.**—Houses.—Prestonfield, 144 houses; Prestonfield, 204 flatted houses; Featherhall, Corstorphine, 20 houses, for T.C. E. J. MacRae, A.R.I.B.A., City A.

Apr. 30.—**Greenock.**—Demolition.—Of portions of Clyde Refinery, Drumfrochar-rd., for T.C. Water E.

Apr. 30.—**London.**—Repairing and Painting.—Of the exteriors to various schools (the contractor will be required to employ only men resident in West Ham on these works) for the County Borough of West Ham Education Committee. John H. Jacques, L.R.I.B.A., Architect to the Committee, 61, West Ham-la., Stratford, E.15. Dep. £1.

Apr. 30.—**Swaffham.**—Houses.—Six at Saham Toney, near Watton, for R.D.C. I. Shingles, C.

Apr. 30.—**Wharfedale.**—Additions.—Also alterations to casual wards at Institution, New Hall, Otley, for B.G. O. Holmes, A., Boroughgate, Otley.

May 1.—**Crayford.**—Houses.—71 houses, and alternatively 23 houses, in Slade Green-rd., for U.D.C. F. Leary, E. and S. Dep. £3 3s.

May 2.—**Alnwick.**—Painting.—At Northumberland Hall, for U.D.C. J. T. Robson, Town S.

May 2.—**East Dereham.**—Cottages.—Three pairs in Crown-rd., for U.D.C. S.

May 2.—**Gosforth.**—Station.—Small pumping station, for U.D.C. Taylor & Wallin, E.'s, 47, Pilgrim-st., Newcastle-on-Tyne. Dep. £5.

May 2.—**London.**—Dwellings.—Erection of four blocks of working-class dwellings, comprising 88 flats, at Wolcot-st., Somers Town, for the St. Pancras B.C. F. V. Creed, T.C., Town Hall, Pancras-rd, N.W. 1. Dep. £2 2s.

May 2.—**London.**—Painting and Repairing Works.—To the exteriors of the Receiving Homes for Children, Nos. 59, 61 & 63, Hornsey-rise, London, N. 19, for the Guardians of the Poor of the Parish of St. Mary, Islington. Edmund J. Harrison, L.R.I.B.A., 23, Berkeley-rd., Crouch End, N.8. Dep. £2.

✱May 2.—**Wombwell.**—Houses.—Erection of 66 type A houses on a site situate near to King's-rd. Wombwell. The scheme has been divided into three sections of 18, 20 and 28 houses respectively, and tenders may be submitted for all or any of these sections for the U.D.C. D. H. Roberts, L.R.I.B.A., Park-st., Wombwell. Dep. £2.

May 3.—**Barking.**—Buildings.—(*a*) Refreshment pavilion, Longbridge Park; (*b*) electricity showroom and offices, Ripple-rd., for U.D.C. C. J. Dawson, F.R.I.B.A., Clock House Chambers, East-st. Dep. £6 each.

May 3.—**Boulcomshere.**—Enlargement.—Of National school, Co. Kerry, for Commissioners of Public Works. T. Cassedy, secretary, Office of Public Works, Dublin. Dep. £1.

May 3.—**Flintshire.**—Boundary Walls.—At Connah's Quay Police Station, for C.C. R. G. Whitley L.R.I.B.A., C.A. and S., County Offices, Mold.

May 3.—**Liskeard.**—Alterations.—Also additions to Cottage Hospital. H. R. Venning, L.R.I.B.A., Midland Bank-chambers.

May 3.—**Sheffield.**—Sorting Office.—For Commissioner of H.M. Office of Works. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

May 4.—**Carrick-on-Shannon.**—Houses.—8 for Irish Sailors' and Soldiers' Land Trust. R. E. Bickerson, Chief Clerk, Irish Sailors' and Soldiers' Land Trust. Dublin. Dep. £5 5s.

May 4.—**Derby.**—Secondary School.—Erection of, for boys, on the Elm Tree House Estate, Uttoxeter-rd., Derby, for the Education Committee. Macpherson & Richardson, Tenant-st., Derby. Dep. £1 1s.

May 4.—**Rainham.**—Telephone Exchange—For Commissioners of H.M. Office of Works. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners).

May 5.—**Beechwood.**—Station.—For Commissioners of Public Works. T. Cassedy, Secretary, Office of Public Works, Dublin. Dep. £1.

May 5.—**East Finchley.**—Telephone Exchange. For Commissioners of H.M. Office of Works. Contracts Branch, King Charles-st., London, S.W.1 Dep. £1 1s. (Cheques payable to the Commissioners.)

May 6.—**London.**—Plumbing Work.—Fitting about fifty baths with alterations to sculleries at Flaxman-terrace dwellings, Euston-rd., for the St. Pancras B.C. F. V. Creed, T.C., Town Hall, Pancras-rd., N.W. 1.

May 6.—**Mitcham.**—Post Office and Telephone Exchange.—For Commissioners of H.M. Office of Works. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

May 7.—**Milngavie.**—Plumbing.—For 36 flatted houses at Craigton-rd., for T.C. F. A. B. Preston, L.R.I.B.A., 6, Buchanan-st. Dep. £1 1s.

May 9.—**Moorthorpe.**—Church, &c.—Holton & Fox, Corporation-st., Dewsbury.

May 9.—**Thorne.**—Houses.—12 at Bearswood Green, Hatfield, and 8 at Low Levels, Hatfield, for R.D.C. H. Plewes, A. and S. Dep. £2 2s.

May 10.—**Essex.**—Elementary School.—Erection of at Laindon, for the Essex E.C. Jno. Stuart, F.R.I.B.A., County Architect, Springfield Old Court, Chelmsford. Dep. £2 2s.

May 10.—**Wallingford.**—Redecoration.—To houses in Harwell-rd., Bicarage-rd., St. Peter's-rd. and South-rd., Didcot, for R.D.C. P. C. A. Slade, C., 7, St. Martin's-st., Wallingford, Berks.

✱May 11.—**London.**—Demolition Work and Tar-paving Paths.—(*a*) Pulling down and clearing away the branch institution; (*b*) renewing tar-paving to paths for the Guardians of the Wandsworth Union. F. J. Curtis, Clerk, Union Offices, St. John's Hill, Wandsworth, S.W.18.

May 12.—**Nelson.**—School.—Secondary school, for Lancashire E.C. S. Wilkinson, F.R.I.B.A., C.A., 10, Ribblesdale-place, Preston. Dep. £2.

✱MAY 12.—**Rowley Regis.**—HOUSES.—68 houses, together with construction of roads, sewers, surface water drains, fencing, &c., for U.D.C. W. F. Edwards, L.R.I.B.A., 1, Newhall-st., Birmingham. Dep. £2 2s.

MAY 14.—**Corwen.**—PAINTING, &C.—Zion Calvinistic Methodist Chapel and committee rooms. E. Derbyshire.

MAY 16.—**Essex.**—PAVILION WARD.—At the Hospital in Stifford Long Lane, near Grays, Essex, for the Orsett Joint Hospital Board. Chas. M. Ansell, C. to the Board. 11, Chadwell-rd., Grays, Essex. Dep. £5 5s.

MAY 28.—**Huyton-with-Roby.**—CONVERSIONS. — Of 86 midden privies and 28 pail closets to water-closets, for U.D.C. R. J. Pritchard, Sanitary Inspector. Dep. £2.

JUNE 28.—**Portugal.**—ARSENAL.—Construction of a naval arsenal on the south bank of the river Tagus, for Portuguese Government. Portuguese Embassy.

—**Buxton.**—HEADQUARTERS.—For Boy Scouts, The Silverlands. C. Flint, L.R.I.B.A., A. and S., The Quadrant.

—**Chinley.**—BUILDINGS.—For Mr. Porritt. G. E. Garlick & Son, A. and S., Royal Exchange-buildings, Buxton.

MATERIALS, etc.

APR. 25.—**Beckenham.**—SLAG.—1,700 tons of tarred slag macadam, for U.D.C. H. Storr Best, S. Dep. £2.

APR. 25.—**Edinburgh.**—TRADES.—For North Junction school premises, for E.C. J. Stewart, Executive Officer.

APR. 25.—**Farnborough.**—ROAD MATERIALS.—For U.D.C. J. E. Hargreaves, S.

APR. 25.—**South Mimms.**—ROAD MATERIALS, &C.—For R.D.C. G. Simcox, S., Potters Bar.

APR. 25.—**Thame.**—ROAD MATERIALS.—For U.D.C. J. T. Robinson, S.

APR. 25.—**Soyland.**—SLAG.—230 tons of 2 in. and ½ in. slag, also about 100 yds. of 12 in. by 8 in. best kerb, 140 yds. of 2½ in. best flags, 20 yds. of 8 in. best setts, for U.D.C. W. Whitehead, S.

APR. 26.—**Manchester.**—GRANITE.—For Tramways Committee. H. Mattinson, General Manager and Engineer, 55, Piccadilly.

APR. 26.—**Rushden.**—ROAD MATERIALS.—For U.D.C. W. B. Madin, E. and S.

APR. 27.—**Argyll.**—BUILDER'S MATERIALS. — For Argyll and Bute District Mental Hospital. C.

APR. 27.—**Holywood.**—STONES.—For U.D.C. J. S. Munce, S., 11, Wellington-pl., Belfast.

APR. 27.—**Southport.**—PIPES.—700 tons of cast-iron spigot and socket pipes and specials, 15 in. in diameter, for Southport, Birkdale and West Lancashire Water Board. C. Burton Ede, Engineer and Manager.

APR. 29. — **London.** — VARIOUS MATERIALS.— For M.W.B. G. F. Stringer, C., 173, Rosebery-av., E.C.1.

MAY 2.—**Wigtownshire.**—ROAD MATERIALS.—For C.C. T. H. M. Murray, S.

MAY 4.—**Clacton.**—ROAD MATERIALS.—For U.D.C. G. T. Lewis, C.

ENGINEERING, IRON AND STEEL.

APR. 25.—**Manchester.**— STEELWORK. — Structural steelwork for extension of Hyde-rd., car works, for T.C. City A. Dep. £1 1s.

APR. 26.—**Cricklade and Wootton Bassett.**—EXTENSION.—Supplying and laying new water mains with sluice valves, air valves, hydrants, and all other connections; about 2,240 yds. of 3 in. diam. cast-iron pipes; the building of elevated reinforced concrete service reservoir, new pumping station, and dry well, the fixing of all machinery, &c.; all connections with the existing water mains, and all other works necessary to complete Purton Water scheme, for R.D.C. G. Parker Pearson, E., Dallas-chambers, Chippenham. Dep. £2 2s.

APR. 27.—**Maidstone.**—SEWERAGE.—650 yds. of 6 in. stoneware pipe sewer, with manholes, inspection chambers, &c., and the construction of engine house, ejector chamber, settling tanks, filter bed, and other appurtenant works, at Staplehurst, for R.D.C. T. A. Busbridge, E. and S. Dep. £2 2s.

APR. 30.—**Coltness.**—SIDING.—Construction of a branch railway 1¼ miles long single line siding accommodation, 500 yds. long, and road of access 1¼ miles long, to a new pit proposed to be sunk near Climpy Colliery, Wilsontown branch of the L.M. & S. Rly., for Coltness Iron Co., Ltd. J. B. Brodie, 141, West George-st., Glasgow. Dep. £5.

MAY 9.—**Upper Stour Valley.**—IMPROVEMENTS.—Pumping station at Hay Green, Lye, near Stourbridge, and one at The Freehold, Quarry Bank; and also storm water tanks; detritus tank at Whittington, near Stourbridge, for Main Sewerage Board. Geo. Plant Deeley, E., 13, Church-st., Stourbridge. Dep. £5.

MAY 9.—**Worcester.**—WATERWORKS.—Lining with reinforced concrete of the existing pure water tank at the Worcester Waterworks, for T.C. T. Caink, City E.

MAY 12.—**Southampton.** — WIDENING. — Dredging, deepening and widening in western approach to Southampton Water in the Solent, for Harbour Board. J. A. Rupert-Jones, S. Dep. £1.

—**Altofts.**—ADDITIONS.—Two sedimentation tanks, four 50 ft. diam. percolating filters, two humus tanks, and other incidental works, at sewage works, near Normanton, for U.D.C. F. Massie, Chartered Civil E., Tetley House, 47, Kirkgate, Wakefield. Dep. £5.

ROAD, SEWERAGE, AND WATER WORKS.

APR. 25.—**Alnwick.**—PIPES.—Providing and laying 1,365 yds. of 3 in. and 3,798 yds. of 4 in. cast-iron socket pipes, from Low Buston to Warkworth, with fittings, and an open iron tank to hold 7,000 gallons, for R.D.C. M. T. Wilson,

APR. 25.—**Battle.**—SEWERAGE.—Laying of about 3,000 ft. of 15 in. stoneware sewer and construction of sewage tanks and filters, for U.D.C. W. L. Bradley, E., Tonbridge. Dep. £3 3s.

APR. 25.—**Beckenham.**—PAVING.—3,200 super yds. of artificial stone paving, for U.D.C. H. Storr Best, S. Dep. £2.

APR. 25.—**Chertsey.**—DRAINS.—Road, footpaths and surface water drain, for U.D.C. F. W. Greig, S. Dep. £2 2s.

APR. 25.—**Coulsdon and Purley.**—IMPROVEMENTS.—Peaks-hill (part of) and Peaks-hill-rise, Purley, for U.D.C. R. Chart, S. Dep. £2 2s.

APR. 25.—**East Barnet.**—MAKING-UP.—Willenhall-av., The Drive, Lyonsdown-av., for U.D.C. H. York, E. and S.

APR. 25. — **Farnborough.** — STREET WORK. — In Osborne and Park-rds., for U.D.C. J. E. Hargreaves, S. Dep. £2 2s.

APR. 25.—**Giffnock.**—DRAINAGE.—1,770 yds. of main sewer, also pipes and contingent works, with alternative quotations for concrete and fireclay pipes, for First or Upper D.C. of Renfrew C.C. J. Gilchrist Bennett, C.E., 19, Waterloo-st., Glasgow. Dep. £1 1s.

APR. 25.—**Glasgow.**—PAVING.—Carriageway of Great Western-rd., from Byers-rd. to Hyndland-rd., with bituminous paving, for T.C. J. Lindsay, T.C.

APR. 25.—**Kempton.**—MAINS.—Cast-iron water main and connections from and to the filters, pumps and reservoirs at the Board's works, at Kempton Park, Hanworth, and across the Hanworth-Sunbury road, together with the construction of a concrete suction tank, and other contingent works, for M.W.B. G. F. Stringer, C., Offices of the Board, 173, Rosebery-av., E.C.1. Dep. £10.

APR. 25.—**London.**—PAVING.—Wood block paving on reinforced concrete foundations in Old Kent-rd., S.E., Camberwell-rd., Queen's-rd., and Peckham Park-rd., and new concrete roadway in Honiton-st., Peckham, S.E. 15, for Camberwell B.C. W. Bell, B.E. and S.

APR. 25.—**Manchester.**—DRAINAGE.—Surface drainage work at Hyde-rd., tramcar depot, for T.C. City A. Dep. £1 1s.

APR. 25.—**North Bromsgrove.**—SEWERS.—725 yds. lin. of 9 in. diameter earthenware pipe sewers, and 1,050 yds. lin. of 12 in. and 9 in. diameter earthenware surface water drains, for U.D.C. G. W. Booth, S. Dep. £1 1s.

APR. 25.—**Nottingham.**—ROADWAYS.—At Bagthorpe Infirmary, for T.C. J. A. Battersby, C., 50, Shakespeare-st.

APR. 25.—**Wealdstone.**—SEWER.—Making-up and providing proper means for lighting Nibthwaite-rd. and a portion of Hamilton-rd., for U.D.C. H. Walker, S. Dep. £1.

APR. 26.—**Barnsley.**—IMPROVEMENTS.—Wharncliffe-st., back road between Coniston-rd. and Grasmere-rd., back road off Western-st., for C.B. B.E.

APR. 26.—**Enfield.**—MAKING-UP.—Glenville-av., for U.D.C. H. R. Crabb, S. Dep. £2 2s.

APR. 26.—**Great Yarmouth.**—PAVING.—650,000 creosoted deal blocks for paving roads, for C.B. S. P. Thompson, B.E.

APR. 26.—**Hambledon.**—MAIN.—Relaying about 860 yds. run of 2 in. water main at the old Gunpowder Works, Chilworth, for R.D.C. P. G. Williams, S.

APR. 26.—**Hornchurch.** — SEWERAGE. — Sewerage works at Wingletye-lane, comprising about 695 yds. 12 in. diameter, 495 yds. 9 in. diameter, and 425 yds. 6 in. diameter stoneware pipe sewers, with manholes and appurtenant works, for U.D.C. F. Alderson, S.

APR. 26.—**Plymouth.**—PIPES.—1,150 yds. 24 in. internal diameter, 2,450 yds. 18 in. internal diameter, 80 yds. 10 in. internal diameter, 200 yds. 9 in. internal diameter, 1,700 yds. 6 in. internal diameter, 93 yds. rectangular steel main, also valves, syphons, and specials, for Corporation. J. R. Bradshaw, Engineer and Manager, Gasworks.

APR. 26.—**Wood Green.**—IMPROVEMENTS.—To Jamesgardens and Croxford-gardens, and sewerage in new road and Roundway, for U.D.C. C. H. Croxford, S. and E. Dep. £1 1s.

APR. 27.—**Friern Barnett.**—PAVING.—Repairs to wood block paving in Friern Barnet-rd., for U.D.C. J. Montague Gameson, E. and S.

APR. 27.—**Hendon.**—MAKING-UP.—Manor-way and Priory-way, Pinner; Hillside-drive and Mowbray-rd., Edgware, for R.D.C. H. W. Rackham, S. Dep. £3 3s.

APR. 27.—**Isle of Ely.**—ROAD.—Two lengths of reinforced concrete road, near Ely, for C.C. R. S. W. Perkins, C.S., Wisbech.

APR. 27. — **Wembley.** — MAKING-UP .— Eton-av., second portion, approximate length 234 yds., and Rosemead-av., approximate length 216 yds., for U.D.C. C. R. W. Chapman, E. and S. Dep. £1 1s. each.

APR. 28. — **Ealing.** — PAVING. — Improvement of Pope's-la. and Gunnersbury-la.; paving of various roads on Pope's-la. housing estate, and making-up Swyncombe-av., Ealing; Horsenden-av., Greenford; Highfield-av., Greenford; King's-av., Greenford; Evelyn-rd., Ealing, for T.C. W. R. Hicks, B.E. Dep. 10s. 6d. each.

APR. 28.—**Newquay.**—MAKING-UP.—Ennor's-rd., for U.D.C. J. H. Edmondson, S. Dep. £2 2s.

APR. 29.—**Guiseley.**—SEWERS.—Roads and sewers on Hawkhill site, for U.D.C. J. Battye, S.

APR. 30.—**Merioneth.**—IMPROVEMENTS.—Widening, rounding-off corners and building of retaining wall on the Holyhead-rd., for C.C. Works are situated at four points between eastern boundary of county near Berwyn and Llidiart-y-parc (near Carrog Station) W. Owen-Jones, C.S., Dolgelly.

MAY 2.—**Wangford.**—ROADS.—Surface tarring with Tarvia (4 gallons to 1 yd. super) and dressing with granite chips about 35,000 sq. yds. of roadway, for R.D.C. S. W. Rix, C., Beccles.

MAY 3.—**Eton.**—REPAIRS.—Scarifying, rolling and coating with granite portions of roadway in Pocock's-la., for U.D.C. J. E. Hattersley, S.

MAY 4.—**Calcutta.**—PIPES.—Supplying and laying steel and cast-iron pipes in trenches at Watgunge pumping station, for Corporation. Constructional Engineer.

MAY 7.—**Newbury.**—SEWER.—Laying 1,100 lin. yds. of 18 in. diameter cast-iron outfall sewer, with manholes and other works, for T.C. B.E. and S.

MAY 9.—**Coseley.**—SEWERS.—4,940 yds. of stoneware and cast-iron sewers, manholes and other appurtenant works, for U.D.C. Berrington & Son, E. s, Prudential Chambers, Lichfield-st., Wolverhampton. Dep. £5 5s.

MAY 9.—**London.**—MAIN.—Laying and jointing 2,909 lin. yds. of 36 in. diameter cast-iron water main and connections, together with contingent works, from Albert-rd., St. Pancras, to Brecknock-rd., in Islington, for M.W.B. Chief Engineer, 173, Rosebery-av., E.C.1. Dep. £10.

—**Haywards Heath.**— SEWERAGE WORK. — On Summer-hill estate. H. G. Turner, A., Perrymount-rd.

Competitions.

(See Competition News 636.)

Auction Sales, Tenders, etc.

APR. 26.—**Enfield.**—Hampton & Sons will sell, at St. James's Estate Rooms, freehold residential property, "Wildwoods," Crews Hill. Auctioneers, 20 St. James's-square, S.W.1.

✱APR. 26.—**Lowestoft.**—Catchpole & Richards will sell, by direction of R. A. Evans & Co., Ltd., on the premises at St. Leonard's-rd., Lowestoft, saw mill and joinery machinery and plant. Auctioneers, Elm Chambers (next to Central Station), Lowestoft.

✱APR. 26 AND 27.—**West Bromwich.**—Perry & Phillips will sell on the premises, Sandwell Hall, the whole of the interior and exterior fixtures and fittings. Auctioneers, 59, High-st., Bridgnorth.

✱APR. 27.—**London.**—E. Fryett will sell, at the London Trade Sale Rooms, Ltd., 78 and 81, Fetter-la. (opposite Gamages), stock of wallpapers. Auctioneers as above.

MAY 3 AND 4. — **Yorkshire.**—Perry & Phillips, Ltd., will sell, in conjunction with Wallis & Arnett, on the premises, Sedbury Park, Richmond, Yorkshire, part of a fourteenth-century building, originally the Saxon stronghold of Earl Eadwin, the whole of the interior and exterior fixtures and fittings, the fabric of the Mansion, &c. Auctioneers, Perry & Phillips, Ltd., High-street, Bridgnorth; and Wallis & Arnett, Croft, Darlington.

✱MAY 4 AND 5.—**Wembley.**—F. H. Clark will sell, without reserve, at Empire Exhibition, Wembley, timber, building materials, hut sections, &c., comprising 2,000 lots, Australian elm flooring, steel trusses, casement windows, &c. Auctioneer, 117, Victoria-st., S.W.1.

✱MAY 10, 11 AND 12.—**Uttoxeter.**—Messrs. Perry & Phillips, Ltd., will sell, on the premises, Calwich Abbey, Uttoxeter, fixtures and fittings, previous to demolition, of the Abbey, the historical stone-built "Handel's" Temple; after this the fabric of the Abbey will be sold for demolition. Auctioneers, High-st., Bridgnorth.

MAY 31.—**London.**—Hampton & Sons will sell, by order of the Trustees of Admiral F. Harrison-Smith, deceased, Edgware, freehold residential and building properties, "Moor House" and "Lymes Farm," Little Stanmore, near Edgware, the properties thereon, in all about 60 acres. Auctioneers, 20, St. James's-sq., S.W.1.

✱JUNE 21.—**London.**—Weatherall & Green will sell, at the London Auction Mart, 155, Queen Victoria-st. E.C.4, Adelphi Estate, Strand, within short distance of Charing Cross, freehold, nearly two acres in extent, comprising the historic Adelphi-ter. Auctioneers, 22, Chancery-la., W.C.2.

Public Appointments.

APR. 30. — **Birmingham.** — SENIOR ASSISTANT. — Required in the Architect's Department. The appointment is temporary, but, subject to satisfactory service, will be for a period. Chief Education Offices, Education Offices, Margaret-st., Birmingham.

MAY 4.—**London.**—DISTRICT SURVEYOR.—For Chelsea and Deptford, required by the London County Council. Clerk to the Council, The County Hall, Westminster Bridge, S.E. 1.

London. — CLERK OF WORKS. — Required by the Guardians of the City of London Union for general renovations, &c. Edward R. Woodward, Clerk to the Guardians, 61, Bartholomew-close, London, E.C. 1.

Fifteenth-Century Discovery at Cobham.

An interesting discovery, says the *Morning Post*, has been made by Major Benton Fletcher, of World's End, Cobham, at The Cedar House, close by the Old Mill at Cobham. This is a fifteenth-century hall, dated A.D. 1432, the same date as that of Church Stile House, near the Parish Church. Until recently it had a kitchen, larder, and pantry built inside it. When Major Fletcher bought the premises a brick wall ran across the centre of the hall, but this has now been taken down. The oak ceiling and original beams are still there, whilst across the roof are curved oak collars. There is also a beam of 20 ft., all one piece, across the tie. In another room is an old kitchen with an ancient open fireplace, across which is a spit and an 8 ft. wide chimney breast. The house is shaped like the letter H, with two wings, one of which is a new one, and built as nearly as possible on the old foundations. Outside is a real Gothic doorway, and the entrance gate from the roadway was taken from a house in Kent belonging to Richard Brinsley Sheridan, the famous author and dramatist.

PROPOSED NEW BUILDINGS & OTHER WORKS*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport: C.B. for County Borough; B.E. for Board of Education; M.A.B. for Metropolitan Asylums Board; and M.W.B. for Metropolitan Water Board.

FOLLOWING is a list of abbreviations:—Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Clerk, C.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; County Architect, C.A.; Surveyor, S.; Engineer, E.; Borough Architect, B.A.; Architect, A.

ALLERTON.—Building operations have commenced in connection with picture theatre. Owners, Bedford Cinemas, Ltd.

APPLETON.—Appleton Estates are proposing to develop a portion of Broomfield Farm for building purposes.

ASHFORD.—Sir G. G. Scott has prepared plans for Catholic church in Ford Bridge-rd.

BATLEY.—Housing and Town Planning Committee has received £16,600 for 36 houses.

BIRKBY.—A sum of £500 has been promised to building fund of St. Cuthbert's Church, Birkby, Huddersfield.

BIRMINGHAM.—Hay Mills Picture House is to be reconstructed. Satchwell-Roberts, are the architects.

BLACKBURN.—T.C. passed plans: Four houses, Lammack-rd., J. H. Hargreaves; 4 bungalows, Arterial-rd., Pleckgate, Jas. Ashworth; vicarage, Burnley-rd., Rev. Jno. Parker; 4 houses, Beresford-rd., Hy. Thompson; 4 houses, Whalley New-rd., G. R. Clayton; shops, Whalley New-rd., Brownhill, Blackburn Amalgamated Co-operative Society, Ltd.; sub-station, Greenfield-st., Electricity Department.

BLACKPOOL.—The plans prepared by Halstead Best, F.R.I.B.A., for a new cinema in Waterloo-rd., South Shore.

BOURNEMOUTH.—M.H. has held an inquiry into application of T.C. to borrow £6,625 in respect of alterations and additions to the Overstrand Cafe, Boscombe.

BRAINTREE.—U.D.C. are to ask architect to prepare plans and invite tenders for an additional 56 houses on the Cressing-rd., estate.

BRISTOL.—Amended plans for cinema in Castle-st., with seating capacity of 2,250, has been passed by the local authorities. Owners, Provincial Cinematograph Theatres, Ltd.

CANVEY ISLAND.—Council are to construct a 4-miles reinforced concrete road across the island at a cost of £50,000.

CARDIFF.—School Sites and Building Committee decided to ask engineer to prepare plans for school at Ely to accommodate 1,200 scholars, and not to cost more than £20,000.

CARNMONEY.—First sod on site of war memorial hall in connection with parish of Carnmoney has been cut by Mrs. J. Seeds. Hall will provide seating accommodation for 300.

EAST DENTON.—Northumberland E.C. propose school.

ENGLEFIELD GREEN.—Parishioners of St. Cuthbert's are raising funds for church on a site that has been acquired.

HOVE.—T. C. passed plans: E. J. Love, for D. S. Barclay, 6 houses and garages, Berriedale-av.; W. H. Overton, for B. Cook, 6 houses, Portland-rd.; Hunter & Bedford, for J. Cooper, 5 houses, Portland-villas; E. J. Love, for Worthing Estates Building Co., Ltd., 6 houses, Brittany-rd.

HULL.—Super-cinema to be built on site of Grammar School playing fields, is to be known as Carlton Picture Theatre. Promoters, Hull Picture Playhouses, Ltd.

KINGSBURY.—All Souls' College, Oxford, have given a site for erection of a church hall.

LEEDS.—Capitol, Milanwood, is to be reconstructed.

LEICESTER.—Floral Hall Cinema, Belgrave Gate, is to be rebuilt for Leicester Palace Theatre Co., Ltd.

LIMEHURST.—R.D.C. has acquired premises at 202, Oldham-rd. for new rating offices.

LIVERPOOL.—T.C. recommend, subject to approval of B.E., that plans prepared by Land Steward and Surveyor for public elementary school to be erected on the Pinehurst-rd. site, be adopted; also elementary school on the Strawberry-la. site.—E.C. are to be authorised to complete purchase of land in Wavertree, at corner of Mossplts-la. and Woolton-rd., for public elementary school. Subject to approval of B.E., revised plans prepared by Land Steward and Surveyor for the two remaining sections of the Springwood (Allerton) Council school, be adopted.

LONDON (GREENWICH).—B.C. propose utilising a portion of Hospital cemetery site for maternity and child welfare centre, at £3,700.

LONGTOWN.—B.G. are inviting tenders for extensions to provide accommodation for casuals.

MALTBY.—B.E. has approved a site for secondary school.

MEXBOROUGH.—A site has been secured in Garden-st., upon which a super-cinema is to be built. J. J. Woffenden, Empire Picture Palace.

MIDDLETON.—Licensing Justices have confirmed the authority for the removal of licence of "Hopwood Arms," Slattocks, to a site on the opposite side of road.

NELSON.—T.C. approved 50 houses on Marsden Hall estate, and application is to be made to M.H. for £25,000.—Town Hall and Estates Sub-Committee propose purchase of certain land adjoining Carr-rd. Wesleyan school in connection with extensions to Town Hall. B.S. is to obtain prices for ferro-concrete work required in widening railway bridge in Walton-lane.

NEWCASTLE.—B.E. has given sanction to E.C. to purchase a site for Central Technical College, at £42,335.

NEWCASTLE-ON-TYNE.—Reconstruction, redecoration, &c., is to be carried out at Royal Electric Theatre, Groat Market. Proprietor, S. Rogers.

NOTTINGHAM.—Society of the Sacred Mission at Kelham propose alterations and extensions to buildings, including new studios and bathrooms. Plans by Curry & Thompson, 3, Market-pl.

OLDHAM.—C.B. passed plans: J. Whitehouse & Sons, 5 houses, Eric-st.; T. C. Lees, 8 houses and 3 garages, Keble-av., Miller-rd.; H. Partington, 9 houses, New-rd.; Oldham Industrial Co-operative Society, Ltd., amended plan of 3 shops and assembly hall, Manchester-rd., Hollinwood; H. Halliwell, 6 houses, Montgomery-st.; F. Thompson, 16 houses, Thurland-rd., and Tunstall-rd.; W. Makin, 30 houses (1 w.c. each), Merton-av.

PORTSMOUTH.—T.C. passed plans: Brown & Fuller, 12 houses, Locarno-rd.; H. Townsend, 5 houses, Stubbington-av., North End; C. W. Stigant & Sons, 10 houses, Padwick-av., Cosham; Gammans & Coffin, 28 houses, Merthyr-av., Cosham; W. E. Ekers, 10 houses, Randolph-rd.; J. J. Canterbury, 4 houses, Kirby-rd.; E. Gibson, H. Williams, 7 houses, Winton-rd.; Jno. Croad, builder, owners, Hays Waterproof Glue Co., Ltd., factory, off Target-rd., Tipnor; E. & G. Dye, 8 houses, Stubbington-av.; J. C. Juniper, 4 houses, Ripley-gr.

PRESTON.—The Lancashire C.C. has approved purchase of site at Hesketh-la., Tarleton, for new school.

RAMSGATE.—Harbour station is to be converted into a dance hall.

ROTHERHAM.—Licensing Justices have confirmed the removal of the licence of the "White Hart" Inn, Church-st., to premises proposed to be erected on opposite side of thoroughfare.

SCARBOROUGH.—B.S. is to prepare plans for club-house on the golf course.

SHEFFIELD.—Wesleyan authorities have in view erection of Sunday schools at Endcliffe and Woodseats, and extensions to their buildings at Millhouses and Totley Rise.—T.C. recommend that M.H. be asked to approve 158 houses on Longley estate.—Tenders for public abattoir and wholesale meat market in Cricket Inn-rd., Park, are being invited.

SHEPTON MALLET.—R.D.C. has accepted tenders for 20 houses at Emborough, at £10,150.

SOUTH CROSLAND.—U.D.C. considered tenders for six houses on Crescent-rd. estate.

STAFFORD.—The new cinema to be built at Halesowen, for Mr. and Mrs. Bray, of Dudley. The architect, S. Beech, Halesowen.

SURBITON.—U.D.C. propose extension of Council offices. The revised estimated cost of the scheme, including the architect's and quantity surveyor's fees, is £5,800, which Council has approved.

TEDDINGTON.—A war memorial hospital is to be built in Hampton-rd.

THORNTON.—Congregationalists have in view erection of a larger building at Cleveleys. Christian Science Society has purchased land in Victoria-rd., for meeting hall.

UXBRIDGE.—Plans for further 18 houses at Northolt have been approved by R.D.C., and in order to expedite matters the Council decided to ask A. & B. Hanson to undertake the erection.

WAKEFIELD.—West Riding E.C. are proposing to build school for 200 children at Swillington and to enlarge Hatfield and Stamforth school to provide accommodation for a further 150 children.

WATH.—It is proposed to make extensions to the Secondary School by the erection of additional buildings.

WESTERHOPE.—Newburn T.C. are to seek sanction to erection of 88 houses.

WEST LANCASHIRE.—R.D.C. has approved scheme for 50 houses.

WILLINGTON.—U.D.C. has received sanction from M.H. to 30 houses by direct labour.

WILTON.—T.C. has adopted scheme for 16 houses of parlour type and 12 non-parlour type on part of the Fair Ground. Application is to be made to M.H. for sanction.

FIRE.

BISHOP'S FROME.—Damage estimated at over £30,000 has been caused to hop buildings belonging to W. Budge, at Bishop's Frome, Herefordshire.

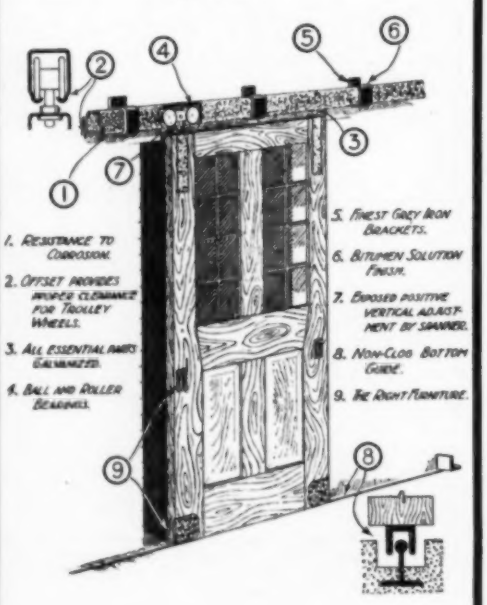
* **See also our List of Contracts, Competitions, etc.**

SLIDING DOOR GEAR

FOR FACTORIES, GARAGES, SCHOOLS, ETC.

Nine essential features of "Henderson" Door Gear

TRADE MARK


1. RESISTANCE TO CORROSION.
2. OFFSET PROVIDES PROPER CLEARANCE FOR TROLLEY WHEELS.
3. ALL ESSENTIAL RAILS GALVANIZED.
4. BALL AND ROLLER BEARINGS.
5. FINEST GREY IRON BRACKETS.
6. BITUMEN SOLUTION FINISH.
7. EXPOSED POSITIVE VERTICAL ADJUSTMENT BY SPANNER.
8. NON-CLOG BOTTOM GUIDE.
9. THE RIGHT FURNITURE.

WRITE FOR BOUND CATALOGUE B26 TO

P. C. HENDERSON, LIMITED.

BARKING, ESSEX. PHONE: GRANGEWOOD 0247.

Swimming Bath, Rugby School.

Plans have been passed for an open swimming bath at Rugby School, 200 ft. long by 50 ft. wide. The bath will be laid out in the grounds of Southfield House in the Crescent, and the cost will be about £9,000, towards which the Governors have promised £1,000. The bath will, it is hoped, be ready by the summer of next year.

Catterick Camp: Reconstructions.

The third contract for the reconstruction of further portions of Catterick Camp, as a garrison for regular army troops, has been obtained by Messrs. Sir Lindsay Parkinson & Son, contractors, of Blackpool, the amount being given as £350,000. Previous contracts for about the same amount were given to Messrs. John Laing & Co., Ltd., and Messrs. A. & S. Wheator (London) Ltd.

The Art of Bell-ringing in England

The Norfolk Guild of Ringers have celebrated their jubilee at Norwich. At a luncheon to mark the event, the Dean of Norwich said that the Guild of Ringers to-day represented an art which was wholly and absolutely their own. Alone of the nations of the world England rejoiced in bells and bell-ringing such as was represented in their guild. Bells were not unknown on the Continent, but carillon-ringing was very different from peal-ringing, and it was one of the many glories of our dear Motherland that our bells surpassed those of all other countries, and that the art of change-ringing was our very own. It was in the early part of the seventeenth century that change-ringing, as distinct from round-ringing, was elaborated into a science, and with the Restoration in 1660 came a perfect mania for new bells. Ringing became a fashionable pastime and societies for its practice were formed, but then came a period of blackness and deadness. With the coming of the new doctrine in the early part of the nineteenth century that ringers were Church officers, and that the art should be consecrated, a steady improvement set in and nothing in the history of ringing was more remarkable than the way ringers had risen to the dignity of their position. In the guilds of the country there were 40,000 members to-day.

Obituary.

The death has occurred, at Torquay, of Mr. James Thomas Downing, formerly a well-known builder of Penzance. Mr. Downing was 65 years of age.

PRICES CURRENT OF MATERIALS

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	4 5 6
Second Hard Stocks	3 19 6

Per 1,000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons, at King's Cross	2 14 3	Best Blue Pressed Staffs	9 5 0
Do. grooved for Plaster	2 16 3	Do. Bullnose	9 15 0
Do. Bullnose	3 8 3	Blue Wire Cuts	7 5 0
Best Stourbridge Fire Brick :—			
2½ in.	8 11 0	3 in.	10 3 0

GLAZED BRICKS—

Best White Ivory, and Salt Glazed Stretchers	21 10 0	D'ble Str'tch'rs	3 0 0
		D'ble Headers	27 0 0
		One Side and two ends	31 0 0
Headers	21 0 0	Two Sides and one End	32 0 0
Quoins, Bullnose and 4½ in.		Splays and Squints	28 10 0
Flats	28 0 0		

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

BREEZE CONCRETE SLABS.

Delivered London.

	s. d.		s. d.
2 in. per yd. super	1 11	3 in. per yd. super	2 9
2½ in. " "	2 4	4 in. " "	3 6

	s. d.	
Thames Ballast	10 6	per yd.
Pit Sand	13 9	" "
Thames Sand	14 6	" "
Best Washed Sand	14 6	" "
¾ in. Shingle for Ferro-Concrete	12 9	" "
¾ in. " "	14 0	" "
¾ in. Broken Brick	11 6	" "
Pan Breeze	7 6	" "

delivered 2 miles radius Paddington.

Per ton delivered in London area in full van loads.

Best Portland Cement. British Standard Specification. Test £2 18 0 to £3 3 6 5 lbs. alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above	0 10 0
Super Cement (Waterproof)	4 8 0
Roman Cement	8 15 0
Parian Cement	5 15 0
Keene's Cement, White	5 15 0
" " Pink	5 10 0
Plaster, Coarse, Pink	3 0 0
" " White	3 12 6
" Fine	5 12 0
Strapite, Coarse	3 9 0
" Finish	3 17 0
Grey Stone Lime	3 0 9
Chalk Lime	3 0 9
Best Ground Blue Lias Lime	2 13 6
Hair per cwt.	2 2 6
Granite Chippings	1 12 0

NOTE.—Sacks are charged 1s. 9d. each and credited 1s. 6d. if returned in good condition within three months carr. pd.

Stourbridge Fireclay in s'cks 37s. 0d. per ton at rly. dp.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2 10

PORTLAND STONE—

Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 4½
Do. do delivered on road wagons at above stations, per ft. cube	4 5½
White basebed, 3d. per ft. cube extra.	

NOTE.—1d. per ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.

HOPTON-WOOD STONE—

	s. d.
Delivered at any Goods Station, London.	
Random blocks from 10 ft. and over P. ft. cb.	17 0
Sawn two sides "	27 0
Sawn three or four sides "	32 0

YORK STONE, BLUE—*Robin Hood Quality.*

Delivered at any Goods Station, London.	
6 in. sawn two sides landings to sizes (under 30 ft. super.) Per ft. super	5 6
6 in. rubbed two sides, ditto "	6 0
3 in. sawn two sides slabs (random sizes) "	2 3½
2 in. to 2½ in. sawn one side slabs (random sizes) "	1 6½
1½ in. to 2 in. ditto, ditto "	1 4

HARD YORK—

Delivered at any Goods Station, London.	
Scappled random blocks Per ft. cube	6 3
6 in. sawn two sides landing to sizes (under 40 ft. super) Per ft. super	5 1½
6 in. rubbed two sides, ditto "	6 1½
4 in. sawn two sides slabs (random sizes) "	2 10
3 in. ditto ditto "	2 1½
2 in. self-faced random flags Per yd. super	9 0

CAST STONE.

Delivered in London Area in full van loads, per ft. cube :—Plain, 8s. 6d.; Moulded, 9s. 6d Cills, 10s. 0d.

WOOD.

GOOD BUILDING DEAL.

Inches.	per stan.	Inches.	per stan.
4 × 11	£28 0	3 × 6	£21 0
4 × 9	25 0	3 × 11	25 0
4 × 8	24 0	2 × 11	25 0
4 × 7	23 0	3 × 9	24 0
3 × 8	21 0	2½ × 9	23 0
3 × 7	20 0	3 × 4½	22 0
2½ × 7	20 0	3 × 4	22 0

PLANED BOARDS.

1 × 11	£27 0	1 × 9	£26 0

FLAIN EDGE FLOORING.

Inches.	per sq.	Inches.	per sq.
¾	20/-	1¼	31/-
⅞	22/-	1½	34/-
1	25/-		

TONGUED AND GROOVED FLOORING.

Inches.	per sq.	Inches.	per sq.
1	25/-	½	16/6
1¼	31/-	¾	19/-
1½	34/-	1	24/-

Inches.	BATTENS.	s. d.
1 × 2		2 6 per 100 ft.

SAWN LATHS.

Per bundle	0 2 4

1" AND UP THICK.

	£ s. d.	£ s. d.
Dry Austrian Wainscoat, per ft. cube	0 16 0 to	0 18 0
Dry American and /or Japanese Figured Oak, ft. cube	0 15 0 to	—
Dry American and/or Japanese Plain Oak, ft. cube	0 11 0 to	0 13 0
Dry sq. edged Honduras Mahogany, ft. cube	0 16 0 to	0 18 0
Dry Log cut Honduras Mahogany, ft. cube	0 18 0 to	1 1 0
Dry Cuba Mahogany, ft. cube	1 4 0 to	1 10 0
Dry Teak, ft. cube	0 13 0 to	0 15 0
Dry American Whitewood, ft. cube	0 11 0 to	0 14 0
Best Scotch glue, per cwt.	4 10 0 to	—
Liquid Glue, per cwt.	4 7 0 to	5 10 0

SLATES.

First quality slates from Bangor or Portmadoc carriage paid in full truck loads to London Rate Station. Per 1,000.

	£ s. d.		£ s. d.
24 by 12	32 18 4	18 by 10	18 12 11
22 by 12	29 17 11	18 by 9	16 9 2
22 by 11	27 14 2	16 by 10	15 12 6
20 by 12	26 5 0	16 by 8	12 3 9
20 by 10	22 10 0		

TILES.

Delivered at London rate stations in full truckloads of not less than 4 tons. Per 1,000 f.o.r. London.

	£ s. d.
Best machine-made tiles from Broseley or Staffordshire district	5 12 6
Ditto hand-made ditto	5 17 6
Ornamental ditto	6
Hip and valley tiles (per dozen) { Hand-made	0 9 6
Hip and valley tiles (per dozen) { Machine-made	0 9 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION, PER TON—

	£ s. d.
R.S. Joists, cut and fitted	12 10 0
Plain Compound Girders	14 10 0
Stanchions	16 10 0
In Roof Work	19 10 0

MILD STEEL ROUNDS.

To London Station, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
¼ in.	12 0 0	⅜ in. to ⅞ in	10 15 0
½ in.	11 0 0	1 in. to 2½ in.	10 10 0

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward if sent from London Stocks.)

	Tubes.	Fittings Over ½"	Flanges Over ½"
Black Gas	67½ %	45 %	55 %
Galvanised Gas	52½ %	35 %	45 %
Blue Water	62½ %	40 %	5 %
Galvanised Water	46½ %	3 %	40 %
Red Steam	57½ %	35 %	45 %
Galvanised Steam	40 %	25 %	35 %

C.I. HALF-ROUND GUTTERS—London Prices, ex Works.

Per yd. in 6ft. lengths.	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	1/3½	11½d	3½d.
3½ in.	1/4½	1/1½	3½d.
4 in.	1/6	1/3	3½d.
4½ in.	1/7½	1/4½	4½d.
5 in.	1/10½	1/6½	5½d.

O.G. GUTTERS.

3 in.	1/3	1/4½	3½d.
3½ in.	1/8	1/4½	3½d.
4 in.	1/9½	1/4½	3½d.
4½ in.	1/11½	1/7½	4½d.
5 in.	2/4½	1/10½	5½d.

RAIN-WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches, stock angles.
2 in. plain	1/10½	1/3	1/9½
2½ in. "	2/0½	1/4½	2/1½
3 in. "	2/6	1/9	2/7½
3½ in. "	2/11½	2/0½	3/0½
4 in. "	3/5	2/6½	3/8½

L.C.C. COATED SOIL PIPES—London Prices, ex Works.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
2 in. per yd. in 6 fts. plain	3 3	2 4½	2 10
2½ in. "	3 9	2 7½	3 7
3 in. "	4 6	2 10	4 2½
3½ in. "	4 11½	3 7	4 11½
4 in. "	5 5½	4 0½	5 9

L.C.C. COATED DRAIN PIPES—London Prices ex Works.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
3 in. per yd. in 9ft. lengths	4 4	5 1	8 0½
4 in. " "	6 2	5 8	10 0
5 in. " "	7 2	10 10	17 1
6 in. " "	8 6	13 2	21 9

Gasken for jointing, 38/6 per cwt.

	Per ton in London. £ s. d.		£ s. d.
IRON— Common Bars	13 0 0	to	14 10 0
Staffordshire Crown Bars—good merchant quality	14 5 0	—	15 5 0
Staffordshire Marked Bars	16 5 0		17 5 0
Mild Steel Bars	10 0 0		11 0 0
Steel Bars, Ferro-Concrete quality, basis price	10 0 0	—	11 0 0
Hoop iron, basis price	12 0 0	—	13 0 0
" Galvanised	27 0 0		28 0 0

Soft Steel Sheets, Black—

Ordinary sizes to 20 g.	13 5 0	—	14 5 0
" " 24 g.	14 5 0		15 5 0
" " 26 g.	16 5 0		17 5 0

Sheets Flat Best Soft Steel, O.R. & O.A. quality—

Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15 10 0		16 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	16 10 0	—	17 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	18 10 0	—	20 10 0

No. 1 quality £4 per ton extra.

Flat and Galvanised Corrugated Sheets—

Ordinary sizes, 6 ft. to 9 ft. to 20 g.	18 0 0		20 0 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	18 10 0		19 10
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	21 10 0	—	22 10 0

Sheets Galvanised Flat, Best quality—

Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	22 0 0		23 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	24 0 0	—	25 0 0
Best Soft Steel Sheets, 26 g.	25 10 0		26 10 0
Cut Nails, 3 in. to 6 in.	19 0 0		20 0 0

(Under 3 in. usual trade extras.)

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

LEAD, &c

	£ s. d.
(Delivered in London.)	
LEAD—Sheet, English, 4 lb. and up	35 0 0
Pipe in coils	35 10 0
Soil Pipe	38 10 0
Compo Pipe	30 10 0
Old lead, ex London area, at Mills per ton	25 0 0

NOTE—Country delivery, 20s. per ton extra: lots under 3 cwt., 3s. per cwt. extra, and over 3 cwt. and under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

COPPER.

	s. d.
Seamless Copper tubes (basis) per lb.	1 0½
Strong sheet "	1 0
Thin "	1 1
Copper nails "	2 3
Copper wire "	2 4

PLUMBERS' BRASS WORK.

Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
29/-	45/-	76/-	153/-	246/-	510/- per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
41/6	62/-	92/-	174/-	300/-	588/- per doz.

NEW RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.
39/6	60/-	116/6 per doz.

CAPS AND SCREWS.

1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
7/6	10/-	14/-	23/-	30/-	42/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
7/6	11/-	17/-	29/-	38/-	63/- per doz.

BRASS SLEEVES.

1½ in.	2 in.	3 in.	3½ in.	4 in.
10/-	12/-	20/-	24/-	31/- per doz.

NEW RIVER PATTERN CROYDON BALL VALVES, S.F.

½ in.	¾ in.	1 in.	1¼ in.
35/-	56/-	98/-	162/-	228/- per doz.

DRAWN LEAD P. & S. TRAPS WITH BRASS CLEANING SCREW.

	1¼ in.	1½ in.	2 in.	3 in.
½ lbs. P. traps	33/-	41/-	56/-	101/- per doz.
8 lbs. S. traps	35/-	45/-	66/-	126/- "

TIN—English Ingots. 3/1 per lb. SOLDER—Plumbers 1/4, Tinmen's 1/8, Blowpipe 1/8 per lb.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil,	in pipes per gallon	0 2 11
" " "	in barrels "	0 3 1
" " "	in drums "	0 3 3
Boiled " "	in barrels "	0 3 3
" " "	in drums "	0 3 6
Turpentine	in barrels "	0 4 2
"	in drums (10 gall.) "	0 4 4
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		49 5 0

GENUINE WHITE LEAD PAINT—"Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J." Brand and other best brands (in 14 lb. tins) not less than 5 cwt. lots per ton delivered 68 15 0

Red Lead, Dry (packages extra)	per ton	41 0 0
Best Linseed Oil Putty	per cwt.	3 15 0
Filocol	"	0 15 6
Size. XD Quality	"	0 3 6

Continued on next page

*The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

	Per ft.		
15 oz. fourths ..	2½ l.	32 oz. fourths	6½
15 „ thirds	3½ l.	32 „ thirds	9½
21 „ fourths ..	4 l.	Obscured Sheet, 15 oz..	4½d.
21 „ thirds ...	4½ l.	„ „ 21 „ ..	5½d.
26 „ fourths .	4½ l.	Fluted 15 oz. 6½d., 21 oz.	9½d.
26 „ thirds	6½ l.	En'lled 15 oz. 5½d., 21 oz.	7½d

Extra price according to size and substance for square-cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
¼ Rolled plate	4½
⅜ Rough rolled	5½
½ Rough rolled	5½
Figured Rolled. Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish White..	6½
Ditto, tinted	9½
Rolled Sheet	5½
White Rolled Cathedral	6½
Tinted Do.	7½

Cast Plate is same price as rough rolled

VARNISHES &c.

		Per Gallon. £ s. d.
Oak Varnish.....	Outside	0 14 0
Fine ditto.....	ditto	0 16 0
Fine Copal	ditto	0 18 0
Pale Copal	ditto	1 0 0
Pale Copal Carriage	ditto	1 4 0
Best ditto.....	ditto	1 12 0
Floor Varnish	Inside	0 15 0
Fine Pale Paper	ditto	0 18 0
Fine Copal Cabinet	ditto	1 2 6
Fine Copal Flatting	ditto	1 0 6
Hard Drying Oak	ditto	0 18 0
Fine Hard Drying Oak.....	ditto	0 19 0
Fine Copal Varnish	ditto	1 0 0
Pale ditto	ditto	1 2 0
Best ditto	ditto	1 12 0
Best Japan Gold Size		0 12 6
Best Black Japan		0 10 6
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black.....		0 7 6
Berlin Black.....		0 14 6
Knotting (patent)		1 5 0
French and Brush Polish		0 17 0
Liquid Dryers in Terebine		0 9 0
Culrass Black Enamel		0 7 0

Slum Clearance in Glasgow.

A further slum clearance scheme has been prepared by the Corporation of Glasgow, and it is proposed to deal with 1,020 dwellings situated in eleven of the more congested wards. There will be an annual deficit of £17,000, of which 50 per cent. will be met by the Government by subsidy for slum clearances. The balance is equivalent to one-fifth of a penny on the Corporation health rate.

THE SCOTTISH BUILDER

NEW BUILDINGS IN SCOTLAND

Renfrewshire.—WIDENING.—The County Council of Renfrew has approved the scheme for the widening and reconstruction of the bridge carrying the public road leading from Glasgow to Kilmarnock by Newton Mearns over the L.M.S. Railway, and widening and reconstruction on the northern side of the bridge carrying Church-road over the L.M. & S. Railway.

Kintore.—HOUSES.—The Town Council are to build two blocks of four houses each.

Aberdeen.—CINEMA.—The cinema which is now being erected on the site of the old Electric Theatre, Union-street, is to cost about £70,000.

Dundee.—CINEMA.—A new cinema of 1,200 capacity is to be erected on a site in Grays-lane, Lochee, by Mr. A. E. Bennall.

Dundee.—BUILDINGS.—A Sub-Committee of the Town Council has decided to recommend the Council to purchase Dundee Prison at the price offered by the Secretary of State for Scotland, at £15,000.

Edinburgh.—BUILDINGS.—The Dean of Guild Court passed the following:—City, pavilion at bowling green, Balgreen-road; Juniper Green Bowling Club Trustees, club house at Lanark-road, Juniper Green; Messrs. M'Donald, Donaldson & Low, six houses at Craiglockhart-road; Royal Edinburgh Asylum for Insane, an outpatients' department at Jordan Burn Nursing Home, and a porch at West House, Morningside.

Hamilton.—HOUSES.—The Dean of Guild Court passed plans for the erection of 118 houses at Low Waters to supply accommodation for dispossessed tenants of uninhabitable houses in the burgh.

West Calder.—EXTENSION.—The Midlothian Education Authority has approved a recommendation of the Building Committee in connection with the extension of West Calder Roman Catholic Schools, which is estimated at £4,800. The Superintendent of Works has been instructed to proceed with the preparation of plans and specifications. He has also been instructed to prepare sketches for the extension of West Calder High and Bonnyrigg Schools.

Hamilton.—HOUSES.—Plans have been passed for 66 houses at Linhouse and 14 at Yews.

Inverness.—HOUSES.—The Town Council will shortly embark upon another scheme for 100 houses.

Kinghorn.—HOUSING.—The Housing Committee has reported that the total cost of the 40 new houses to be built at Baliolfield will be £15,729.

Prestwick.—HOUSES.—The Town Council has agreed to proceed with the erection of 76 additional houses, 40 houses to be erected at Glenburn, and 36 at the Waterloo-road site.

Kirkcaldy.—HOUSING.—The Fife Council has approved the scheme for the erection of 286 houses at £120,000.

Criagewan.—SHELTER.—The Peterhead Feuars' Managers have reported that the cost of the shelter and tea-room to be erected will be £1,114 18s.

Tarbert.—IMPROVEMENTS.—Every available piece of ground suitable for curing stations has been acquired for the proposed improvements. It is proposed to erect a new breast wall, running in a westerly direction from the north-west point of the original stone quay, and to reclaim the space between this and the existing wall. Besides thus providing greater accommodation for herring curers, berthing facilities will be improved.

Glasgow.—SLUMS.—Details of an extensive slum clearance scheme to be carried out by the Corporation involve 1,019 houses. The largest area included in the scheme is the quadrangle formed by Main-street, Franklin-street, Rumford-street, and Reid-street, in the Bridgeton district, where it is proposed to clear the existing buildings and at a later date to build houses on the site. The estimated cost of the scheme is about £480,000.

Ayr Water Scheme.

It has been intimated at an Ayr Town Council meeting that arrangements had been made with the L.M. & S. Railway, and with the Ayrshire Electricity Board, to withdraw their opposition to the Ayr Burgh Water Order, which seeks power to obtain an additional supply of water for the burgh from Loch Recawr at an estimated cost of £250,000. This leaves the County Council as the only opponents of the Order, and negotiations are proceeding with them to give them the supply of water that they desire.

New Housing Scheme at Airdire.

At a meeting of Airdrie Town Council it was stated that the Board of Health had approved of the Council's purchase of the lands of Whinhall, and of the lay-out and type plans of the new slum clearance housing scheme for the erection of 160 flatted houses (120 of three apartments and 40 of two apartments). Offers were accepted for the building of the first instalment of these houses, which worked out at £353 5s. 4d. per house, and the second instalment which worked out at £320 15s. 4d. per house.

Cathcart Castle.

Following the recommendation of their Sub-committee on Parks, &c., Glasgow Corporation have decided to accept the offer by Messrs. A. J. & A. Graham, on behalf of Earl Cathcart to sell to the Corporation ground, extending to 18,633 acres or thereby, adjoining the Linn Park, together with Cathcart mansion house and offices and the adjoining historical Cathcart Castle, at the price of £2,300 subject to certain conditions.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers—Masons', Bricklayers', Plasterers'.
Aberdeen	1/8	1/8½	1/8	1/8	1/8	1/8	1/7	10½d. to 1/1
Airdrie	1/8	1/8	1/8	1/8	1/8	—	1/6½	1/8
Alexandria.....	1/8	1/8	1/8	1/8	1/8	1/8	—	1/2½ to 1/3½
Arbroath	1/7	1/7	1/7	1/7½	1/7	1/7	1/5½	1/1½
Ayr	1/8	1/8	1/8	1/8	1/8	1/8	1/6½	1/3
Bathgate	1/8	1/8	1/8	1/8½	1/8	1/8	1/6½	1/2 to 1/3
Blairgowrie	1/7	1/7	1/7	1/7½	1/5	1/7	1/4	10d. to 1/-
Bo'ness	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Coatbridge.....	1/8	1/8	1/8	1/8	1/8	—	1/6½	1/3 to 1/3½
Dumbarton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Dumfries	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Dundee	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Dunfermline	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Edinburgh	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Falkirk	1/7½	1/7½	1/7	1/8	1/7	1/7	1/6½	1/2½
Fort William.....	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Galashiels	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Glasgow	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Greenock	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/0½ to 1/3½
Hamilton	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Hawick	1/7	1/7	1/7	1/7-1/7½	1/7	1/7	1/7	1/2½
Helensburgh	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/3½
Inverness	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/- to 1/2
Kilmarnock	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Kirkcaldy	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Kirkwall.....	1/5	1/5	1/4	1/5	1/5	1/4	1/4	1/-
Lanark	1/8	1/8	1/8	1/9	1/8	1/8	1/6	1/0 to 1/3
Leith	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Motherwell.....	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Perth	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3
Stirling	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Stirlingshire (Eastern District	1/8-1/10	1/8 1/10	1/8	1/9	1/7	1/8	1/6½	1/3½
Wishaw	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/3½

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 663

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	11	0
Add if in clay	,, ,,	1	0
Add for every additional depth of 6 ft.	,, ,,	0	6
Planking and strutting to trenches	per foot super	0	5
Do. to sides of excavation, including shoring	,, ,,	1	0

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	38	0
Add if in underpinning in short lengths	,, ,,	7	0
Add if in floors 6 in. thick	,, ,,	3	3
Add if in beams	,, ,,	3	9
Add if aggregate 1 : 2 : 4	,, ,,	10	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	,, ,,	2	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	32	0	0
Add if in stocks	,,	7	10	0
Add if in Staffordshire blues	,,	22	0	0
Add if in Portland cement and sand	,,	1	10	0

FACINGS.

Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1¼

POINTING.

Neat flat struck or weathered joint	,, ,,	0	0	3

ARCHES.

Extra only to the price of ordinary brickwork :—				
Fair external in half brick rings	,, ,,	0	0	10
Axed in stocks	,, ,,	0	1	9
Rubbed and gauged jointed in putty camber or segmental	,, ,,	0	6	0

SUNDRIES.

Damp course in double course of slates breaking joint and bedded in Portland cement	,, ,,	0	1	0
Setting ordinary register grates and stoves	each	1	0	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	,,	4	15	0

ASPHALTER.

		s.	d
Half-inch horizontal damp course	per yard super	4	6
Three-quarter-inch vertical damp course	,, ,,	9	6
Three-quarter-inch on flats in two thicknesses	,, ,,	6	3
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	,, ,,	1	2

MASON.

York stone templates fixed	per foot cube	13	0
York stone sills fixed	,, ,,	22	0
Bath stone and all labour fixed	,, ,,	10	6
Portland stone fixed	,, ,,	20	0

SLATER.

Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	72	9
Do. 20 in. × 10 in. Do. Do.	,,	80	9
Do. 24 in. × 12 in. Do. Do.	,,	90	0

CARPENTER AND JOINER.

Fir framed in plates	per foot cube	5	0
Do. joists	,, ,,	5	6
Do. roofs, floors, and partitions	,, ,,	6	0
Do. trusses	,, ,,	8	6

		¾″	1″	1¼″	2″
Deal rough close boarding	per sq.	35/6	40/-	45/-	72/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	,,	50	0
Do. to beams	per ft. sup.	1	0
Centres for arches	,,	1	6
Gutter boards and bearers	,,	1	0

FLOORING.

		¾″	1″	1¼″	1½″
Deal-edges shot	per sq.		44/6	53/-	60/6
Do. tongued and grooved	,,		49/-	57/6	65/-
Do. matchings	,,	45/-	51/-		
Moulded skirting, including backings and grounds	per ft. sup.	1/6	1/9	2/0	2/6

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super.	1	10
Two Do. Do. Do.	,, ,,	2	1
Add for fitting and fixing	,, ,,	0	3
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares, double hung, double hung with pulleys, lines and weights; average size	,, ,,	3	9

DOORS.

		1½″	1¾″	2″
Two-panel square framed	per ft. sup.	2/1	2/4	2/6
Four-panel Do.	,,	2/5	2/8	2/11
Two-panel moulded both sides	,,	2/8	2/11	3/2
Four-panel Do. Do.	,,	2/11	3/2	3/5

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	14	0

		1″	1¼″	1½″
Plain deal jamb linings framed	per ft. sup.	1/7	1/8	1/11
Deal shelves and bearers	,,	1/4	1/6	1/9
Add if cross-tongued	,,	2d.	2d.	2d.

STAIRCASES.

		1″	1¼″	1½″	2″	2½″
Deal treads and risers in and including rough brackets		2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed		1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run	0	9
Mahogany handrail: average, 3 in. × 3 in.	,, ,,	6	0
Add if ramped	,, ,,	12	0
Add if wreathed	,, ,,	24	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/-
Sash fasteners	11½d.	Mortice locks	4/6
Casement fasteners	1/5	Patent spring hinges and letting into floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	16	3
Plain compound girders	,,	19	0
Do. stanchions	,,	21	9
In roof work	,,	27	6

RAIN-WATER GOODS.

		3″	4″	5″	6″
Half-round plain rebated joints	ft. run	1/6	1/9	2/-	2/6
Ogee Do. Do.	,,	1/9	2/-	2/6	3/3
Rain-water pipes with ears	,,	1/9	2/7	—	—
Extra for shoes and bends	each	4/4	5/11	—	—
Do. stopped ends	,,	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	,,	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	49	6
Do, Do. in flats	,,	48	6
Extra labour and solder in coated cesspools	each	6	9
Welf joint	per ft. run	0	6
Soldered seam	,, ,,	1	6
Copper nailing	,, ,,	0	6

		½″	¾″	1″	1½″	2″	4″
Drawn lead waste	per ft. run	1/2	1/9	2/-	3/4	4/-	—
Do. service	,,	1/8	2/2	2/7	3/10	—	—
Do. soil	,,	—	—	—	—	—	6/9
Bends in lead pipe	each	—	—	—	—	3/3	8/2
Soldered stop ends	,,	1/2	1/8	2/1	2/10	3/6	—
Red lead joints	,,	11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints	,,	2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws	,,	—	—	—	14/7	19/6	—
Bib cocks and joints	,,	6/4	9/7	15/4	41/-	—	—
Stop cocks and joints	,,	15/4	17/2	25/8	64/-	—	—

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	2	6
Do. Do. Sirapite	,, ,,	2	9
Do. Do. Keen's	,, ,,	4	0
Add sawn lathing	,, ,,	1	7
Add metal lathing	,, ,,	2	6
(Not including hangers or runners, &c., for suspended ceilings.)			
Portland cement screed	per yard sup.	2	2
Do. plain face	,, ,,	3	3
Mouldings in plaster	per 1 girth	0	1½
One-and-a-half granolithic pavings	per yard sup.	5	9

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	0	8½
26 oz. Do.	,, ,,	1	0
Obscured sheet	,, ,,	1	1
⅛ in. rolled plate	,, ,,	0	9
¼ in. rough rolled or cast plate	,, ,,	0	10½
¼ in. wired cast plate	,, ,,	1	4

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	0	9
Knotting and priming	,, ,,	0	7
Plain painting, 1 coat	,, ,,	0	9
Do. 2 coats	,, ,,	1	2
Do. 3 coats	,, ,,	1	9
Do. 4 coats	,, ,,	2	4
Graining	,, ,,	2	3
Varnishing twice	,, ,,	1	9
Sizing	,,	0	3
Flatting	,, ,,	0	7
Enamel	,, ,,	1	1
Wax polishing	per foot sup.	0	6
French polishing	,, ,,	1	2
Preparing for and hanging paper	per piece, 2/- to 4/-		

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1¼ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him next week not later than Monday evening.

* Denotes *accepted.*

† Denotes *provisionally accepted.*

‡ Denotes *recommended for acceptance.*

§ Denotes *accepted subject to modifications.*

BARNSLEY.—Panelling in connection with the renovation of the church and chapel at the Barnsley Cemetery, for the T.C. :—

*W. Goodyear & Son £266

BARNSTAPLE.—Twenty-two houses on Mill-road and Pottington-road sites, for the T.C. :—

Block A—*Morrish & Son £3,360
Block B—*W. Slee & Son 2,477
Block C—*J. Cater & Son 3,296

BIRMINGHAM.—Branch Library at Ward End, for the City Council :—

*W. & J. Webb £12,323

BIRKENHEAD.—Electric sub-station on land in Woodchurch-road, Prenton, and Plymyard estate, Eastham, for the C.B. Mr. C. Brownridge, Borough Engineer and Surveyor. Quantities by the Borough Engineer and Surveyor :—

*A. Fleming, Neston—
Plymyard estate £787
Prenton 833

BIRMINGHAM.—Erection of Robin Hood Cinema, to accommodate 1,800 persons. Mr. H. E. Farmer, architect, 57, Colmore-row :—

*Hyde & Sons, Birmingham.

BOCKING.—Rebuilding the Convent bridge, No. 41, Bocking, for the Essex C.C. :—

*A. J. Arnold, Chelmsford £12,049

BOLTON.—Alterations to the Gas Offices for providing additional showroom accommodation, for the T.C. :—

*J. & N. Dickinson (1922), Ltd.

BOURNEMOUTH.—Fencing of Pugs Hole, for the T.C. :—

Wm. Greatrix & Sons ..... —
Bayliss, Jones & Bayliss, Ltd. .. —
Thos. Blackburn & Sons, Ltd. .. —
J. Caslake ..... —
Hill & Smith, Ltd. ..... —
T. W. Palmer & Co. ..... —
*J. L. & E. Pearce, Ltd. £944 15 9

BRIGHTON.—Erection of extensions to the Nurses' Home building, for the Royal Sussex County Hospital, Brighton :—

	Estimate No. 1.	Estimate No. 2.	Total.
W. Pooley & Son, Burgess Hill	£17,805 10 0 ..	£10,116 10 0	£27,922
P. W. Gladstone & Co., Brighton	12,952 0 0 ..	7,181 0 0	20,133
W. Brown & Sons, Brighton	12,144 0 0 ..	7,086 0 0	19,230
Norman & Burt, Burgess Hill	11,982 0 0 ..	6,831 0 0	18,813
T. J. Braybon & Son, Brighton	11,995 0 0 ..	6,743 0 0	18,738
F. T. Wilson & Sons, Brighton	12,167 0 0 ..	6,567 0 0	18,734
Saunders, Brighton	12,013 0 0 ..	6,635 0 0	18,648
Patching & Son, Ltd., Brighton	11,689 0 0 ..	6,816 0 0	18,505
Limpus & Son, Hove	11,700 2 7 ..	6,627 17 5	18,328
Packham, Sons, & Palmer, Brighton	11,540 0 0 ..	6,690 0 0	18,230
J. Barnes & Sons, Brighton	11,456 0 0 ..	6,623 0 0	18,079
Rowland Bros., Horsham	11,449 0 0 ..	6,550 0 0	17,999
F. Sandell & Sons, Worthing	11,348 0 0 ..	6,497 0 0	17,845
Field & Cox, Ltd., Brighton	11,300 0 0 ..	6,350 0 0	17,650
G. Lynn & Sons, Brighton	11,142 0 0 ..	6,231 0 0	17,373
The Ringmer Building Works, Ringmer	10,820 5 3 ..	6,397 17 9	17,218
R. Cook & Sons, Ltd., Crawley	10,575 0 0 ..	6,080 0 0	16,655
*J. W. Woolnough, Ltd., Eastbourne	10,233 0 0 ..	5,882 0 0	16,115

BRAY.—81 houses, for U.D.C. :—

‡McLaughlin & Harvey £34,244
‡Van Kampen Klaswinhel 29,234

BROWNHILLS.—54 non-parlour type houses at Norton East-road and Brownhills-road, Norton Canes, for the U.D.C. Mr. F. S. Harrison, architect and surveyor :—

*W. J. Edwards (Birmingham), Ltd., Birmingham.

BUCKHAVEN AND METHIL.—Iron fencing and gates for 388 houses now nearing completion, for the T.C. Mr. T. L. Brown, Burgh Engineer :—

Gibson & Rowan, Coatbridge .. £1,600 18 6
A. & J. Main & Co., Ltd., Glasgow 1,363 14 10
G. Fraser, Leven, Fife 1,323 15 6
Wm. Wardlaw & Sons, Windygates 1,323 7 0
G. Henderson, Windygates .. 1,291 8 1
*Wm. Gratrix & Son, Manchester 1,207 4 5

BURNLEY.—Houses to be erected under the Finsley Gate re-housing scheme, for the T.C. Borough Surveyor :—

14 houses—
*Lambert & Clough £2,560 1 5
14 houses—
*Thompson & Co. (Concrete), Ltd. 2,639 9 8

BURY.—Sixteen houses on the Grove-park site, for the T.C. :—

*A. R. Plummer (eight) £3,597 0
*H. F. Sewell (eight) 3,701 10

CADISHEAD.—Extensions to the north end of the existing institute of St. Mary's, Partington, for the Parochial Church Council. Messrs. J. Bowden & Co., architects, 14, Ridgefield :—

*Brew Bros., Cadishead.

CHEADLE AND GATLEY.—Painting on sites at Oak-road, Cheadle; Finney-lane, Stockport Etchells; Wood-lane, Cheadle Hulme; Adswood-road, Cheadle Hulme, for the U.D.C. Mr. J. Fothergill, surveyor :—

*Kingham & France, Widdington.

CLITHEROE.—Bank at Market-place, for Messrs. Barclay's Bank, Ltd. Messrs. Dew & Ingham, architects, Hyde :—

*J. Bleazard & Sons, Clitheroe.

DAVENTRY.—Eight non-parlour and four parlour houses at Byfield, for the R.D.C. Mr. J. B. Williams, architect, Moot Hall :—

*W. D. Webster, Guisborough.

DEWSBURY.—Reconstruction of Ravensthorpe Sewage Works, for the T.C. :—

*S. Johnson & Son (Mirfield), Ltd. £58,153 12 9

DUKINFIELD.—112 houses on the Clarendon Fields Estate, for the U.D.C. Borough Surveyor, Town Hall :—

6 houses—*J. Hinchcliffe, Dukinfield.
99 houses—*J. Gerrard & Sons, Manchester.
7 houses—*F. Woolley, Ashton-under-Lyne.

EAST KERRIER, &c.—Twelve houses in district, for the R.D.C. :—

*C. Williams, Constantine £5,630

EDINBURGH.—Demolition, excavations, and upfilling, retaining walls, and drainage, &c., to premises in Bathgate-park, for the Scottish Motor Traction Co., Ltd. Mr. G. Fraser, consulting engineer, 13, Rutland-square :—

*R. Bruce & Son, Edinburgh £7,710

EMLEY-MOOR.—Twelve houses at Churchill Housing estate, for the U.D.C. :—

Masons—
*J. S. Bramley & Sons £2,520 0 0
Joiners—
*J. S. Bramley & Sons 1,152 0 0
Plumber—
*G. Ellis 566 3 10
Plasterer—
*J. Exley 491 12 0
Painters—
*Haigh & Lawton 121 10 0
Slaters—
*W. E. Jowett & Sons 345 0 0

EVESHAM.—Bathroom at the isolation block, for the B.G. Mr. R. J. Atkinson, Union Offices :—

Building—
D. Churchley, Evesham £155 10 0
W. White, Hampton, Evesham .. 152 10 0
*C. J. Knott, Evesham 112 0 0
Heating—
W. Haines, Chipping Campden, Glos. 245 6 0
D. W. Knott, Evesham 217 0 0
C. J. Knott, Evesham 194 0 0
W. White, Hampton, Evesham .. 157 0 0
*Averill & Son, Evesham 144 3 9

EXETER.—Extensions to library, for the City Council. Mr. J. Bennett, City Architect, 2, Southernhay West :—

*Stephens & Son, Ltd. £40,748

GILDERSOME.—Eight houses on the Vicarage site, for the U.D.C. Mr. W. Wilby, surveyor :—

Builder—*F. Turner, Morley.
Plumber—*H. Sykes, Morley.
Slaters—*G. W. Rogerson, Ltd., Morley.
Joiner—*A. Schofield, Gildersome.
Plasterer—*F. Robinson, Gomersal.
Painter—*R. Robinson, Bradford.

GOSFORTH.—Five dwelling houses in flats in Santon-street, for the U.D.C. Mr. G. Nelson, engineer and surveyor :—

W. Hale, Ltd., Gateshead-on-Tyne £4,280 0
G. Robertson & Sons, Newcastle-on-Tyne 3,936 10
*W. Spitch, Gosforth 3,795 0

GREYABBEY.—Alterations to P.E. School, for the Down County Regional E.C. Mr. C. J. Love, architect, 11, Chichester-street, Belfast :—

R. Brown, Newtownards.
J. Smyth, Newtownards.
Houston & Graham, Belfast.
Cairns Bros., Belfast.
J. G. Connor, Belfast.
J. S. Lawther, Belfast.
John Hannah & Co., Newtownards.
H. McMaster, Kircubbin.
*R. Harris, Crossgar.

HUDDERSFIELD.—Co-operative stores at Hillhouses, for the C.W.S., Ltd. :—

*S. Johnson (Mirfield), Ltd.

HUNTLY.—Houses, for the T.C. :—

Mason—
Two blocks of eight houses, *Morrison, Lipp & Drummond, Huntly.
Two blocks, *A. & J. Loggie, Huntly.
Carpenter—
One block, *G. Milne & Son, Forgue.
Two blocks, *James M'Kay & Son, Huntly.
One block, *A. Shewan, Huntly.
Slater—
*J. Cown, Huntly, four blocks.
Plasterer—
*George M'Kay, Huntly, two blocks.
Plumber—
*R. Douglas, Huntly, four blocks.
Painter—
*R. Mitchell & Son, Huntly, four blocks.

KILLYLEAGH.—Conversion of premises into Masonic Hall. Mr. C. J. Love, architect, 11, Chichester-street, Belfast :—

Building—
J. Faulkner, Killyleagh.
J. S. Lawther, Belfast.
Sawrey & Kennedy, Bangor.
Sloan Bros., Carryduff.
Cairns Bros., Belfast.
J. Anderson, Saintfield.
*R. Harris, Crossgar.
Electrical Work—
R. J. Ferguson, Belfast.
Sawrey & Kennedy, Bangor.
Stanley Johnston, Belfast.
G. F. Vulcanizing Co., Belfast.
John Somerville, Belfast.
Robert Harris, Crossgar.
The Coolmore Electrical Works, Belfast.
*F. Guy, Belfast.
Painting—
R. I. Chambers, Downpatrick.
Sawrey & Kennedy, Bangor.
H. Smyth, Belfast.
Breathwait & Sons, Belfast.
James McDowell, Ballynahinch.
Robert Harris, Crossgar.
W. Scott, Belfast.
*R. Rodgers, Killyleagh.

KIRKCALDY.—Thirty-six three-apartment houses and 12 two-apartment houses on land adjoining Massereene-road, and 68 three-apartment houses and 20 two-apartment houses on land adjoining Cairns-street, for the T.C. Mr. G. Duffus, Burgh Surveyor 10, Tolbooth-street :—

*R. Terras, Junr., East Wemyss £51,167 16 8

LANGPORT.—Houses, for the R.D.C. :—

Barrington—*J. V. Baker, Broadway, Ilminster (six houses) 2,469
Beercrocombe—*J. V. Baker (four houses) 1,646
Compton Dundon—*H. G. Wagland, Somerton (two houses) 775
Curry Rivel—*J. Dyer & Sons, Curry Rivel (four houses) 1,668
High Ham—*H. & W. Davis, Middlezoy (six houses) 2,490

LEEDS.—Caretaker's cottage at the Bramley Falls for the T.C. Mr. W. T. Lancashire, City Engineer :—

*Cooper & Silversides, Leeds £768 17 4

ESTIMATING ON RIGHT LINES

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‡E. Proctor & Sons, Plumstead	583 0 0

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J. Garrett & Son,	39,630 0 0..	Less ½ per cent.
Allen Fairhead & Sons, Ltd.	39,315 0 0..	—
F. & T. Thorne	37,999 9 9..	Less ½ per cent.
Leslie & Co., Ltd.	37,279 0 0..	—
*A. E. Symes	37,176 0 0..	—
Architect's estimate	37,936 0 0..	—

(All of London.)

LONDON.—Structural steelwork for the enlargement of Woolmore-street school, Poplar, for the L.C.C.:—

C. P. Roberts & Co., Ltd.	£4,336 0
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Vigor & Co. (Poplar), Ltd.	1,856 0
Baker, Hammond & Laver, Ltd.	3,842 0
Griggs & Son	3,675 0
A. E. Symes	3,560 0
W. J. Clemens	3,498 10
G. B. Farrar & Co.	3,495 0
R. Woollaston & Co.	3,464 0
*W. Simms	3,318 0
Architect's estimate	3,570 0

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LONDON.—Provision and fixing of heating apparatus at Holloway School, Islington, for the L.C.C.:—

Sidney W. Gibson & Co. (Dartford), Ltd.	£1,515 0
Comyn Ching & Co., Ltd.	1,360 0
Edward Deane & Beal, Ltd.	1,330 0
The Brightside Foundry & Engineering Co., Ltd.	1,309 0
Clark, Hunt & Co., Ltd.	1,263 0
J. T. Meredith & Co., Ltd.	1,240 0
The Fretwell Heating Co., Ltd.	1,215 0
Bilbie, Hobson & Co.	1,123 15
National Heating Co., Ltd.	1,107 0
*Central Heating, Ltd.	1,049 0

(All of London.)

The architect's comparable estimate, £1,295.

LONDON.—Alterations at the Camden Town fire station, for the L.C.C.:—

Whitbys, Ltd.	£1,650
C. P. Roberts & Co., Ltd.	1,615
J. C. Mather & Son	1,524
Sims & Russell	1,246
C. H. Boyd & Son, Ltd.	1,242
Stevens & Son	1,238
*J. & C. Bowyer, Ltd.	1,180

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Humphreys, Ltd.	£5,247 0 0
H. A. Murphy & Co.	4,903 0 0
W. H. Gaze & Sons, Ltd.	4,900 0 0
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C. H. Boyd & Son, Ltd.	4,622 0 0
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B. Colley & Sons, Ltd.	4,433 10 2
W. H. Cooper & Son	4,388 0 0
Lole & Co., Ltd.	4,372 0 0
White & Johnson	4,347 16 2
*Triggs & Co.	3,994 0 0

(All of London.)

The architect's comparable estimate, £4,443.

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Whitbys, Ltd.	£1,699 0 0
Burnand & Pickett, Ltd.	1,525 0 0
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Grant, Hook & Co.	1,133 11 11
*Marchant, Hirst & Co.	1,119 0 0
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MANCHESTER.—Adaptation of premises at Baden-street, Higher Ardwick, for the Patent Knitting Co., Ltd. Mr. J. Percival, architect, Commercial Buildings, Blackfriars-street:—

*T. Mottershead, Manchester.	

MANCHESTER.—Alterations to the premises of Messrs. A. K. Dyson & Co., 86, George-street. Messrs. J. W. Beaumont & Sons, FF.R.I.B.A., architects 24, Brazennose-street:—

*R. Carlyle & Co., Ltd., Manchester.	

Steelwork—

C. J. Townsend, Manchester.	

Lifts—

Etchells, Congdon & Muir, Ltd., Manchester.	

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*Peace & Norquoy, Ltd., Ancoats.	

MANCHESTER.—Additions to premises of J. F. Campbell & Co., Ltd., 151-155, Stratford-rd., Hulme:—

*Peace & Norquoy, Ltd., Ancoats.	

MANCHESTER.—Alterations to premises at 420-430 Oldham-rd., for the Deans and Canons of Manchester. J. Bury, Son & Stephenson, 8, John Dalton-st., architects:—

*John Hall, Oldham-road.	

NEWCASTLE.—Cinema in Westgate-road. Messrs. Percy L. Browne & Son, architects, Pearl Buildings, Northumberland-street:—

*J. & W. Lowry, Newcastle.	

NORTHAMPTON.—Alterations to the Horse Repository to provide accommodation for store pigs, for the C.B.:—

*W. E. Cockerill	£248 11 2

PAISLEY.—Cinema in Queen-street, for the Star Cinema (Paisley), Ltd. Messrs. Gardiner & Glen, 164, Bath-street, Glasgow:—

*C. Johnson, Paisley.	

PERTHSHIRE.—Reconstruction of part of the main North-road, from Dalnamein south to Calbruar, a distance of fully 7½ miles, for the D.C. of C.C.:—

*Jack & Co., Ltd., Glasgow	£49,667

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Theo. Conway, Ltd., Weymouth	£9,597
J. Francis, Bournemouth	9,100
Dacombe & Rabbetts, Parkstone	8,600
K. Wilson, Parkstone	8,200
Grant & Rigler, Poole	8,180
Bartlett & Wiffen, Parkstone	7,950
*J. H. Wilson & Sons, Parkstone	7,900

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F. G. Lawrence	509 1 3
W. C. Brown	451 0 0
W. A. Pearce	339 0 0
Gorringe & Son	297 18 0
*J. W. Slator	219 12 0

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*Sadler & Co., London	£9,800

ST. HELENS.—Ten semi-detached houses at Nettlestone, for the U.D.C. Mr. C. Pursey, surveyor:—

*Sadler & Co., London	£5,5[illegible]8

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C. Furbank & Son, Howden-le-Wear	£16,650	0	0
Muirhead, McDonald, Wilson, Birmingham	13,745	11	3
A. H. Price & Co., Nottingham	10,636	3	4
H. Middleton, Liss	10,090	4	10
H. H. Barry, Radcliffe-on-Trent	10,000	0	0
Ward & Tetley, Bradford	9,986	1	6
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General contractors—
*D. O'Neill & Son, Sheffield.

Steelwork—
*Thos. W. Ward, Ltd., Sheffield.

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W. H. Forder, Brighton..... 1,150
Harrison & Whettingstall, Portslade 1,150

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*Fothergill Bros., Ltd., Exeter £1,913

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Snewin & Son, Worthing 1,764
†F. Sandell & Son, Worthing 1,681

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*P. Hamer, Ltd., Swinton—36 houses.
*Musker Bros., Swinton—34 houses.
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(Subject to sanction of M.H.)

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*E. & S. Street, Farnworth.

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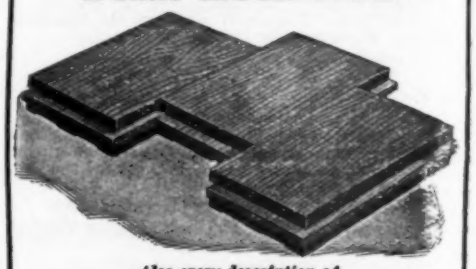

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